ORDER NO. HAD85052555A9

Service Manual

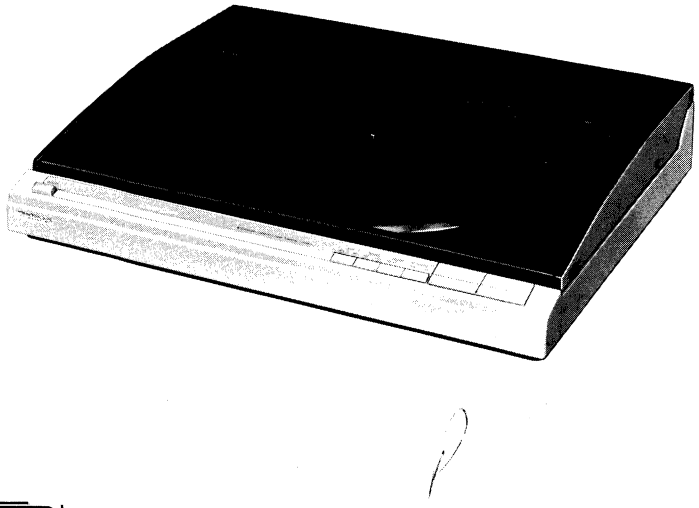
Turntable System

SL-L1

Direct Drive
Automatic Turntable System

Color

(S)..... Silver Type
(K) .... Black Type



Color	Areas
(S) (K)	[E] ..... Switzerland and Scandinavia.
(S) (K)	[EK].... United Kingdom.
(S) (K)	[XL] .... Australia.
(S) (K)	[EG] ... F.R. Germany.
(S) (K)	[EB].... Belgium.
(S) (K)	[EH].... Holland.
(S) (K)	[EF] .... France.
(S) (K)	[Ei]..... Italy.
(S) (K)	[EC].... Czechoslovakia.
(S) (K)	[XA].... Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
(S) (K)	[PA].... Far East PX.
(S) (K)	[PE].... European Military.
(S) (K)	[PC].... European Audio Club.

T4P is the standard mark for plug-in-connector type.
Products carrying this mark are interchangeable and adaptable among each other.

Please use this manual together with the service manual for Model No. SL-L1 [M], Order No. HAD85032457C1.

SPECIFICATIONS

■ Turntable section

Type: Direct drive
Automatic turntable

Features: Auto start/Auto lead-in,
Auto return,
Auto stop,
Forward search play,
Backward search play,
Repeat play,
Record presence detection

Drive method: Direct drive

Motor: Brushless DC motor

Turntable platter: Aluminum die-cast
Diameter 30 cm

Turntable speeds: 33-1/3 rpm and 45 rpm

Wow and flutter: 0.012% WRMS*
0.025% WRMS (JIS C5521)
±0.035% peak
(IEC 98A Weighted)

*Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble: −56 dB (IEC 98A Unweighted)
−78 dB (IEC 98A Weighted)

■ Tonearm section

Type: Linear tracking tonearm
4-pivot gimbal suspension

Effective length: 10.5 cm

Tracking error angle: Within ±0.1°

Effective mass: 9 g (including cartridge)

Resonance frequency: 12 Hz

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105, Japan

SL-L1

Tonearm drive motor: DC motor
Stylus pressure: 1.25 g (fixed)

■ Cartridge section

Model no.: EPC-P30S
Type: Moving magnet stereo cartridge
T4P
Magnetic circuit: All laminated core
Frequency response: 10 Hz ~ 35 kHz
Output voltage: 2.5 mV at 1 kHz, 5 cm/s. zero to peak lateral velocity
(7 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Channel separation: 22 dB at 1 kHz
Channel balance: Within 2 dB at 1 kHz
Recommended load impedance: 47 kΩ~100 kΩ
Compliance (dynamic): 12×10^{-6}cm/dyne at 100 Hz
Stylus pressure range: 1.25±0.25 g (12.5±2.5 mN)
Weight: 6 g (cartridge only)
Replacement stylus: EPS-30CS

■ General

Power supply: For United Kingdom and Australia:
AC240 V, 50 Hz
For continental Europe:
AC 220 V, 50 Hz
For others: ~110-127/220-240 V,
50 or 60 Hz
Power consumption: 9W
Dimensions: (W × H × D) 43 × 9 × 35 cm
(Maximum height when the dust cover is open)
39 cm
Weight: 4.9 kg

Specifications are subject to change without notice for further improvement.

TECHNISCHE DATEN

■ Plattenteller

Typ: Automatischer Plattenteller mit Direktantrieb
Eigenschaften: Auto-Start/Auto-Zuführung
Auto-Rückkehr/Auto-Stop
Vorwärts- und Rückwärts-Suche
Wiederholtes Abspielen
Schallplattendetektion
Antrieb: Direktantrieb
Motor: Kollektorloser Gleichstrommotor
Plattenteller: Aluminium-Druckguß
Durchmesser 30 cm
Plattenteller-Drehzahlen: 33-1/3 und 45 U./min
Gleichlaufschwankungen: 0,012% WRMS*
0,025% WRMS (JIS C5521)
±0,035% Spitze
(IEC 98A bewertet)
*Gemessen anhand von Signalen vom eingebauten Frequenzgenerator des Motorteils.
Rumpeln: −56 dB (IEC 98A unbewertet)
−78 dB (IEC 98A bewertet)

■ Tonarm

Typ: Linearabtastungs-Tonarm mit Kardanaufhängung mit 4-Punkt-Drehlager
Effektive Länge: 10,5 cm
Spurfehlwinkel: Innerhalb ±0,1°
Effektive Masse: 9 g (einschließlich Tonabnehmer)
Resonanzfrequenz: 12 Hz
Tonarm-Antriebsmotor: Gleichstrommotor
Nadeldruck: 1,25 g (nicht einstellbar)

■ Tonabnehmer

Modell Nr. EPC-P30S
Typ: Beweglicher Magnet-Stereotonabnehmer T4P
Magnetkreis: Ganzlamellenkern
Frequenzgang: 10 Hz bis 35 kHz
Ausgangsspannung: 2,5 mV bei 1 kHz
5 cm/s. Null-zu-Spitze, lateral
[7 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° (DIN 45 500)]
Kanaltrennung: 22 dB bei 1 kHz
Kanalabweichung: Innerhalb 2 dB bei 1 kHz
Empfohlene Endimpedanz: 47 kΩ~100 kΩ
Nachgiebigkeit (dynamisch): 12×10^{-6}cm/dyn bei 100 Hz
Nadeldruckbereich: 1,25±0,25 g (12,5±2,5 mN)
Gewicht: 6 g (nur Tonabnehmer)
Ersatznadel: EPS-30CS

■ Allgemeine Daten

Stromversorgung: ~220V, 50 Hz
Leistungsaufnahme: 9W
Abmessungen: (B × H × T) 43 × 9 × 35 cm
(Maximale Höhe bei vollständig geöffnetem Gehäuseoberteil)
39 cm
Gewicht: 4,9 kg

Die technischen Daten können infolgen von Verbesserungen ohne Ankündigung geändert werden.

CARACTERISTIQUES

■ Section de la platine

Type: Entraînement direct
Système de platine automatique
Caractéristiques: Démarrage automatique/Entrée automatique,
Retour automatique/Arrêt automatique,
Audition répétée,
Audition de recherche vers l'avant et l'arrière,
Détection de la présence d'un disque.
Système d'entraînement: Entraînement direct
Moteur: Moteur C.C. sans balai
Plateau de lecture: Aluminium moulé sous pression
Diamètre 30 cm
Vitesses de la platine: 33-1/3 et 45 t/p.m.
Pleurage et scintillement: 0,012% de valeur efficace*
0,025% de valeur efficace (JIS C5521)
±0,035% de crête (IEC 98A pondére)

*Mesuré par l'obtention d'un signal provenant du générateur de fréquences incorporé de l'ensemble du moteur.

Ronflement: −56 dB (IEC 98A non pondéré)
−78 dB (IEC 98A pondéré)

■ Section du bras de lecture

Type: Bras de lecture d'alignement linéaire de type à suspension à la cardan sur 4 pivots
Longueur effective: 10,5 cm
Erreur d'angle d'alignement: En deçà de ±0,1°
Masse réelle: 9 g (y compris la cellule)
Fréquence de résonance: 12 Hz
Moteur d'entrainement du bras de lecture: Moteur C.C.
Force verticale d'appui: 1,25 g (Fixé)

■ Section de la cellule pick-up

N°-du modèle: EPC-P30S
Type: Cellule pick-up stéréo à aimant mobile 14P
Circuit magnétique: Noyau entièrement feuilleté
Réponse en fréquence: 10 Hz à 35 kHz
Tension de sortie: 2,5 mV à 1 kHz; 5 cm/s. zéro à vitesse latérale de crête
[7 mV à 1 kHz; 10 cm/s. zéro à vitesse 45° de crête (DIN 45 500)]
Séparation des canaux: 22 dB à 1 kHz
Equilibrage des canaux: En deçà de 2 dB à 1 kHz
Impédance de charge recommandée: 47 kΩ~100 kΩ
Elasticité acoustique: (dynamique) 12×10^{-6} cm/dyne à 100 Hz
Plage de la force verticale d'appui: 1,25±0,25 g (12,5±2,5 mN)
Poids: 6 g (cellule seule)
Remplacement de la pointe de lecture: EPS-30CS

■ Généralités

Alimentation: Alternatif 220 V, 50 Hz
Consommation: 9W
Dimensions: (L × H × P) 43 × 9 × 35 cm
(Hauteur maximum lorsque le couvercle protège-poussière est ouvert: 39 cm)
Poids: 4,9 kg

Sujet à changement sans prearis.

ESPECIFICACIONES

■ Sección del plato giratorio

Tipo: Plato giratorio automático con accionamiento directo
Ventajas: Arranque/descenso automáticos
Retorno automático
Parada automática
Ejecución con búsqueda hacia adelante
Ejecución con búsqueda hacia atrás
Ejecución repetida
Detección de presencia de disco
Método de accionamiento: Accionamiento directo
Motor: Motor de corriente continua sin escobillas
Platillo del plato giratorio: Aluminio fundido
30 cm de diámetro
Velocidades del plato giratorio: 33-1/3 y 45 rpm
Ululaciones y trémolo: 0,012% WRMS*
0,025% WRMS (JIS C5521)
±0,035% cresta (IEC 98A Ponderado)
*Medido obteniendo una señal proveniente del generador de frecuencias incorporado del conjunto del motor.
Ruido de rodadura: −56 dB (IEC 98A No ponderado)
−78 dB (IEC 98A Ponderado)

■ Sección del brazo sonoro

Tipo: Brazo sonoro de seguimiento lineal con suspensión cardánica de 4 pivotes
Longitud efectiva: 10,5 cm
Angulo de error de seguimiento: Inferior a 0,1° aproxim.
Masa efectiva: 9 g (incluyendo el cartucho)
Frecuencia de resonancia: 12 Hz
Motor de accionamiento del brazo sonoro: Motor de corriente continua
Presión de la aguja: 1,25 g (fija)

■ Sección del cartucho

Núm. del modelo: EPC-P30S
Tipo: Cartucho estereofónico de imán móvil 14P
Circuito magnético: Núcleo totalmente laminado
Respuesta de frecuencia: 10 Hz a 35 kHz
Voltaje de salida: 2,5 mV a 1 kHz
Velocidad lateral de cero a cresta de 5 cm/s
(7 mV a 1 kHz, Velocidad de 45° de cero a cresta de 10 cm/s [DIN 45 500])
Separación de canales: 22 dB a 1 kHz
Equilibrio de canales: Inferior a 2 dB a 1 kHz
Impedancia de carga recomendada: 47 kΩ a 100 kΩ
Elasticidad (dinámica): 12×10^{-6}cm/dina a 100 Hz
Radio de presión de la aguja: 1,25±0,25 g (12,5±2,5 mN)
Peso: 6 g (cartucho solamente)
Aguja de recambio: EPS-30CS

■ En general

Alimentación de corriente: ~110-127/220-240V, 50 ó 60 Hz
Consumo de corriente: 9W
Dimensiones: (Ancho×Alto×Prof.) 43 × 9 × 35 cm
(Altura máxima cuando la tapa contra el polvo está abierta: 39 cm)
Peso: 4,9 kg

Estas especificaciones estàn sujetas a cualquier cambio sin previo eviso.

■ ADJUSTMENT POINTS

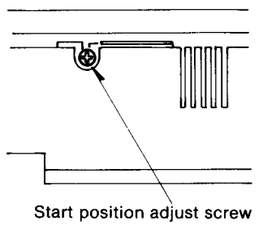


Fig. 1

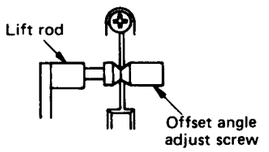


Fig. 2

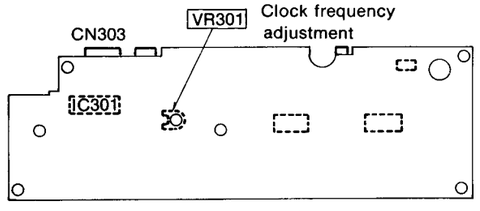


Fig. 3

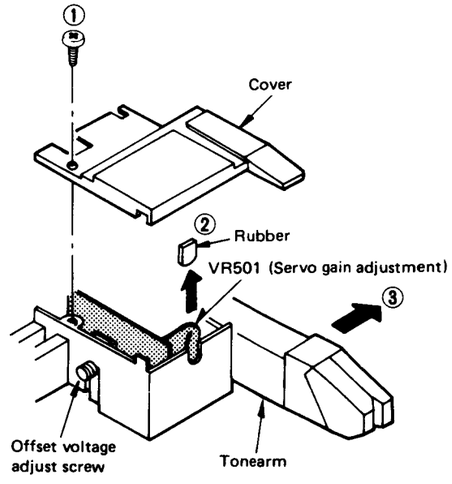


Fig. 4

① Remove the cover.
② Remove the rubber.
③ When adjusting the servo gain, set the tonearm in the direction of the arrow.

■ MEASUREMENTS AND ADJUSTMENTS ——— English ———

• Instruments used

1. Oscilloscope
2. DC voltmeter
3. 30 cm record
4. Screwdriver

• Caution

To adjust servo gain and offset voltage.....
1. Remove the dust cover.
2. Disassembly the tonearm as in Fig. 4.

Step	Item	Preparations	Parts adjusted	Procedure
1	**Start position**	1) Put 30 cm record on turntable mat and close upper cabinet. 2) Set power switch to "on". 3) Push start button switch.	Start position adjust screw. **(Fig. 1)**	1) If stylus drops between tunes, turn adjust screw.
2	**Tonearm offset angle**	1) Open upper cabinet. 2) Set power switch to "on". 3) Push start button to move tonearm inside, then set power switch to "off".	Offset angle adjust screw. **(Fig. 2)**	1) Turn offset angle adjust screw so that tonearm center is aligned to V-groove of lift rod.
3	**Servo gain**	1) Connect DC voltmeter to CN303 terminal ③ (+) and ② (−) of operation circuit board **(Fig. 3)** 2) Set power switch to "on".	VR501 **(Fig. 4)**	1) Completely shift tonearm to the right. 2) Adjust VR501 so that output voltage is 3.6V.
4	**Offset voltage**	1) Connect DC voltmeter to CN303 terminal ③ (+) and ② (−) of operation circuit board **(Fig. 3)** 2) Set power switch to "on".	Offset voltage adjust screw. **(Fig. 4)**	1) Set tonearm to center. 2) Turn adjust screw so that output voltage is 1.8V.
5	**Clock frequency**	1) Connect IC301 (pin ⑦, ⑧, ⑨ and ⑩ shorted) of operation circuit board to pin ㉗ using a lead with a clip. 2) Connect oscilloscope to pin ④ of IC301.	VR301 **(Fig. 3)**	1) Set power switch to "on". 2) Adjust VR301 until cycle output waveform is 30μs±1μs.

■ MESSUNGEN UND JUSTIERUNGEN ——— Deutsch ———

• Zu verwendende Instrumente

1. Oszilloskop
2. Gleichstrommeter
3. 30 cm-Schallplatte
4. Schraubendreher

• Vorsicht

Zum Durchführen der Servo-Verstärkungs-und Offset-Soannungs-Justierung:
1. Die Staubabdeckung abnehmen.
2. Den Tonarm so ausbauen, wie in Abb. 4 gezeigt.

Schritt	Posten	Vorbereitung	Zu justieren-de Teile	Vorgehen
1	**Start-Position**	1) 30 cm-Platte auflegen und Plattenspieler-Gehäuseoberteil schließen. 2) Netzschalter auf "on" stellen. 3) Start-Taste drücken.	Startposition-Justier-schraube **(Abb. 1)**	1) Wenn die Nadel zu weit innen (im bespielten Teil der Platte abgesenkt wird, ist die Justierschraube zu drehen.
2	**Tonarmwinkel**	1) Gehäuseoberteil öffnen. 2) Netzschalter auf "on" stellen. 3) Start-Taste drücken, um Tonarm nach innen zu bewegen; dann Netzschalter auf "off" stellen.	Spurfehl-winkel-Justier-schraube **(Abb. 2)**	1) Spurfehlwinkel-Justierschraube drehen, bis die Tonarmmitte mit der V-Kerbe der Liftstange übereinstimmt.
3	**Servo-Verstärkung**	1) Das Gleichstrom-Voltmeter an CN303, Anschluß ③ (+) und ② (−) der Betriebsschaltungsplatte anschließen. **(Abb. 3)** 2) Netzschalter auf "on" stellen.	VR501 **(Abb. 4)**	1) Tonarm ganz nach rechts bewegen. 2) VR501 so abgleichen, daß die Ausgangsspannung 3,6V beträgt.
4	**Offset-Spannung**	1) Das Gleichstrom-Voltmeter an CN303, Anschluß ③ (+) und Anschluß ② (−) der Betriebsschaltungsplatte anschließen. **(Abb. 3)** 2) Netzschalter auf "on" stellen.	Offsetspan-nungs-Justier-schraube **(Abb. 4)**	1) Tonarm in die Mitte stellen. 2) Justierschraube so einstellen, daß Ausgangsspannung 1,8V beträgt. (Sechskantschlüssel verwenden.)

Schritt	Posten	Vorbereitung	Zu justieren-de Teile	Vorgehen
5	**Taktgeber-frequenz**	1) IC301 (Stifte ⑦, ⑧, ⑨ und ⑩ kurzgeschlossen) der Betriebsschaltungsplatte mit einem Klemmendraht an Stift ㉗ anschließen. 2) Oszilloskop an IC301, Stift ④ anschließen.	VR301 **(Abb. 3)**	1) Netzschalter auf "on" stellen. 2) VR301 so justieren, daß Ausgangs-wellenformperiode 30μs±1μs beträgt.

■ MESURAGES ET RÉGLAGES ——— Français ———

• Instruments et appareils utilisés

1. Oscilloscope
2. Voltmètre à C.C.
3. Disque de 30 cm
4. Tournevis

• Avertissement

Pour régler l'amplification d'asservissement et la tension de suppression...
1. Retirer le couvercle protège-poussière.
2. Démonter le bras de lecture, comme il est montré à la Fig. 4.

Etape	Article	Préparatifs	Eléments à régler	Marche à suivre
1	**Position de mise en marche**	1) Placer un disque de 30 cm sur la platine et refermer le boîtier supérieur. 2) Régler l'interrupteur d'alimentation sur "on" (marche). 3) Appuyer sur l'interrupteur à bouton de mise en marche.	Vis d'ajustement du position-nement de mise en marche. **(Fig. 1)**	1) Si la pointe de lecture s'abaisse entre les plages, ajuster la vis.
2	**Angle de décalage du bras de lecture**	1) Ouvrir le boîtier supérieur. 2) Régler l'interrupteur d'alimentation sur "on" (marche). 3) Appuyer sur l'interrupteur à bouton de mise en marche pour faire déplacer le bras de lecture vers l'intérieur, puis régler l'interrupteur d'alimentation sur "off" (hors circuit).	Vis d'ajustement de l'angle de décalage. **(Fig. 2)**	1) Tourner la vis d'ajustement de l'angle de décalage de telle sorte que le centre du bras de lecture soit aligné sur la rayure en V de la tige d'élévation.
3	**Amplification servomécanique**	1) Raccorder un voltmètre à C.C. à la borne ③ (+) et ② (−) CN303 de la plaquette de circuits opérationnelle. **(Fig. 3)** 2) Régler l'interrupteur d'alimentation sur "on" (marche).	VR501 **(Fig. 4)**	1) Faire pivoter entièrement vers la droite le bras de lecture. 2) Ajuster VR501 de telle sorte que la tension de sortie soit de 3,6V.
4	**Tension de suppression**	1) Raccorder un voltmètre à C.C. à la borne ③ (+) et ② (−) CN303 de la plaquette de circuits opérationnelle. **(Fig. 3)** 2) Régler l'interrupteur d'alimentation sur "on" (marche).	Vis d'ajustement de la tension de suppression. **(Fig. 4)**	1) Placer le bras de lecture au milieu. 2) Tourner la vis d'ajustement de telle sorte que la tension de sortie soit de 1,8V. (Utiliser la clef hexagonale.)
5	**Fréquence des impulsions de rythme**	1) Raccorder IC301 (broches ⑦, ⑧, ⑨ et ⑩ courtcircuitées) de la plaquette de circuits opérationnelle à la broche ㉗ en utilisant un fil avec une pince. 2) Brancher un oscilloscope à la broche ④ de IC301.	VR301 **(Fig. 3)**	1) Régler l'interrupteur d'alimentation sur "on" (marche). 2) Ajuster VR301 de telle sorte que la période de forme d'onde de sortie soit de 30μs±1μs.

■ MEDICIONES Y AJUSTE ——— Español ———

• Instrumentos usados

1. Osciloscopio
2. Voltímetro de CC
3. Disco de 30 cm
4. Destornillador

• Precaución

Para ajustar servoganancia y voltaje de densnivel...
1. Remueva la cubierta para el polvo.
2. Desmonte el brazo del fonocaptor como en la Fig. 4.

Peso	Item	Preparación	Piezas ajustadas	Procedimento
1	**Posición de arranque**	1) Poner disco de 30 cm sobre plato giradiscos y cerrar el gabinete superior. 2) Poner interruptor de corriente en "on". 3) Apretar interruptor botón de arranque.	Tornillo de ajuste de posición de arranque **(Fig. 1)**	1) Si la aguja cae entre tonadas, gire el tornillo de ajuste.

Peso	Item	Preparación	Piezas ajustadas	Procedimento
2	**Angulo de fricción de brazo fonocaptor**	1) Abrir gabinete superior. 2) Poner interruptor de corriente en "on". 3) Apretar botón de arranque para mover brazo fonocaptor dentro, luego poner interruptor de corriente en "off".	Tornillo de ángulo de fricción **(Fig. 2)**	1) Girar tornillo de ajuste de ángulo de fricción de manera que el centro del brazo de fonocaptor esté alineado con ranura-V de varilla de alza.
3	**Servoganancia**	1) Conecte el voltímetro de CC al terminal ③ (+) y ② (−) de CN303 de tablero de circuitos de operación **(Fig. 3)** 2) Poner interruptor de corriente en "on".	VR501 **(Fig. 4)**	1) Cambiar completamente el brazo fonocaptor a la derecha. 2) Ajustar VR501 de manera que tensión de salida sea 3,6V.
4	**Contratensión**	1) Conectar voltímetro de CC a terminal CN303 3 (+) y 2 (−) de circuito principal P.C.B. **(Fig. 3)** 2) Poner interruptor de corriente en "on".	Tornillo de ajuste de ángulo de fricción. **(Fig. 4)**	1) Poner brazo de fonocaptor en centro. 2) Girar tornillo de ajuste de manera que tensión de salida sea 1,8V. (Usar llave hexagonal.)
5	**Frecuencia de reloj**	1) Conecte IC301 (perno ⑦, ⑧, ⑨ y ⑩ cortacircuitados) de tablero de circuitos de operación a perno ㉗ usando un conductor con una presilla. 2) Conectar osciloscopio a perno 301 CI ④.	VR301 **(Fig. 3)**	1) Poner interruptor de corriente en "on". 2) Ajustar VR301 de manera que periodo de forma de onda de salida sea 30μ±1μs.

■ CHANGE IN REPLACEMENT PARTS LIST

Notes:

1. Mentioned in this parts list are only those changed in Model No. SL-L1 for destination [M] area.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ-marked parts are used for black only, while ○-marked parts are for silver type only.
4. Part other than Ⓚ-and ○-marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.	Change of Part: SL-L1 [M]	→ SL-L1/(K)	Area & Color	Part Name & Description
SWITCHES				
S901	Addition	**SFDSHXW225-3**	[XA, PA, PE, PC] only	Voltage Selector ⚠
POWER TRANSFORMERS				
T1	SLT48DTL3A	**SLT48DTE13E**	[EK, XL]	Power Source ⚠
		SLT57DT7E	[XA, PA, PE, PC]	
		SLT48DT10E	[other]	
FUSES				
F1	Addition	**XBA2C02T1B**	[XA, PA, PE, PC] only	250V, T200mA ⚠
		XBA2C05T1B	[other]	250V, T500mA ⚠
F2	Addition	**XBA2C05T1B**	[XA, PA, PE, PC] only	250V, T500mA ⚠
CABINET AND CHASSIS PARTS				
1	SFADC11M01E	**SFADC11N01E**		Dust Cover
5	SFACC11N01E	**SFACC11N01E**	○	Cabinet
		SFACC11N21E	Ⓚ	
5-1	SFKBBD2N01	**SFKBBD2N01**	○	Badge
		SFKBBD2N21	Ⓚ	
6	SFGCQ06N02	**SFGCQ06X01**	[XA, PA, PE, PC]	Rubber Cushion
		SFGCQ06N02	[other]	
7	SFKKC11N01	**SFKKC11S01**		Ornament Plate
40	SFACC13N012	**SFACC13N012**	○ Except for [XA, PA, PE, PC]	Cover
		SFACC13N212	Ⓚ Except for [XA, PA, PE, PC]	
41	SFDJHSC0491	**SFDJHSC0491**	[XL]	AC Socket ⚠
		SFDJHSC04912	[XA, PA, PE, PC]	
		SFDJHSC0516	[other]	
42	SFNNC11M01	**SFNNC11X01**	[XA]	Name Plate
		SFNNC11R01	[EG]	
		SFNNC11P02	[PC]	
		SFNNC11S01	[E, EC]	
		SFNNC11G01	[EK, XL]	
		SFNNC11P01	[PA, PE]	
		SFNNC11Q01	[other]	
43	SFACC11N011	**SFACC11N011**	○	Cover
		SFACC11N211	Ⓚ	
TONEARM PARTS				
72	Addition	**EPC-P33S**	[PA, PE, PC]	★ Cartridge
		EPC-P30S	[other]	
73	Addition	**EPS-33CS**	[PA, PE, PC]	★ Stylus
		EPS-30CS	[other]	
ACCESSORIES				
A1	SFNUC11M01	**SFNUC11G01**	[EK]	Instruction Book
		SFNUC11I01	[Ei]	
		SFNUC11P01	[PA, PE, PC]	
		SFNUC11S01E	[E, EB, EH, EC]	
		SFNUC11X01	[other]	
A4	SFDAC05M02	**SFDAC05G02**	[EK]	AC Cord ⚠
		SFDAC05L01	[XL]	
		SFDAC05X02	[XA]	
		SFDAC05N01	[PA, PE, PC]	
		SFDAC05E02	[other]	
A5	Addition	**SFDKI19118**	[XA] only	Plug ⚠
A6	Addition	**QJP0603S**	[PA, PE, PC] only	Adaptor ⚠
PACKING PARTS				
P1	SFHPC11M01	**SFHPC11C01**	[EF] only ○	Carton Box
		SFHPC11M01	[other] ○	
		SFHPC11F21	[EF] only Ⓚ	
		SFHPC11S21	[other] Ⓚ	

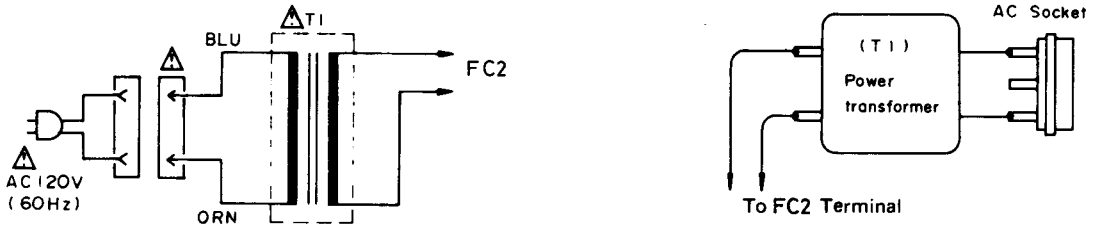
■ SCHEMATIC DIAGRAM AND PRINTED CIRCUIT BOARD

Important safety notice:

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.

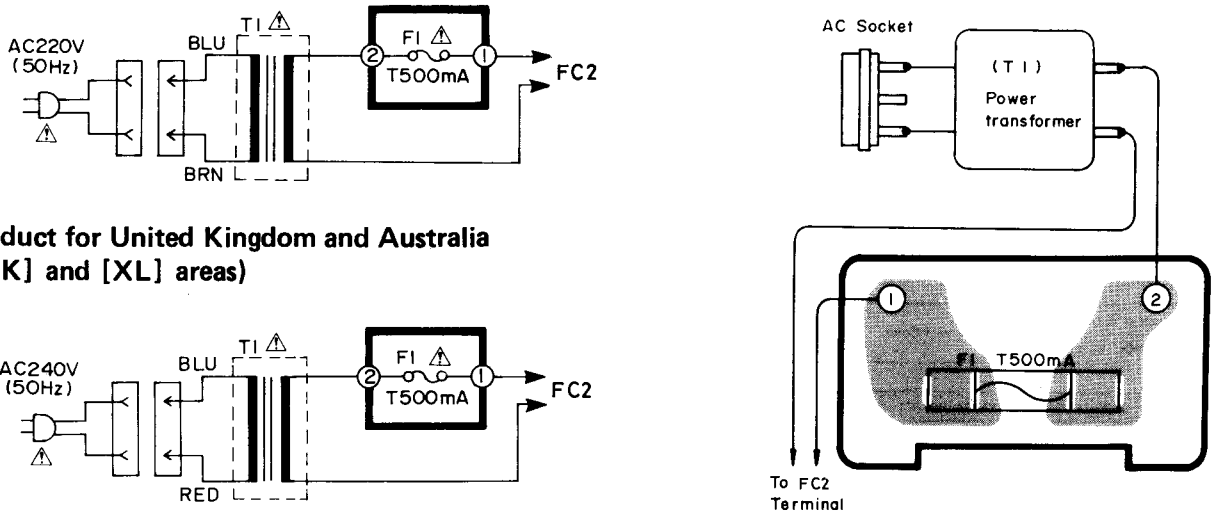
- **Change in power source circuit**

Product for U.S.A. ([M] area)



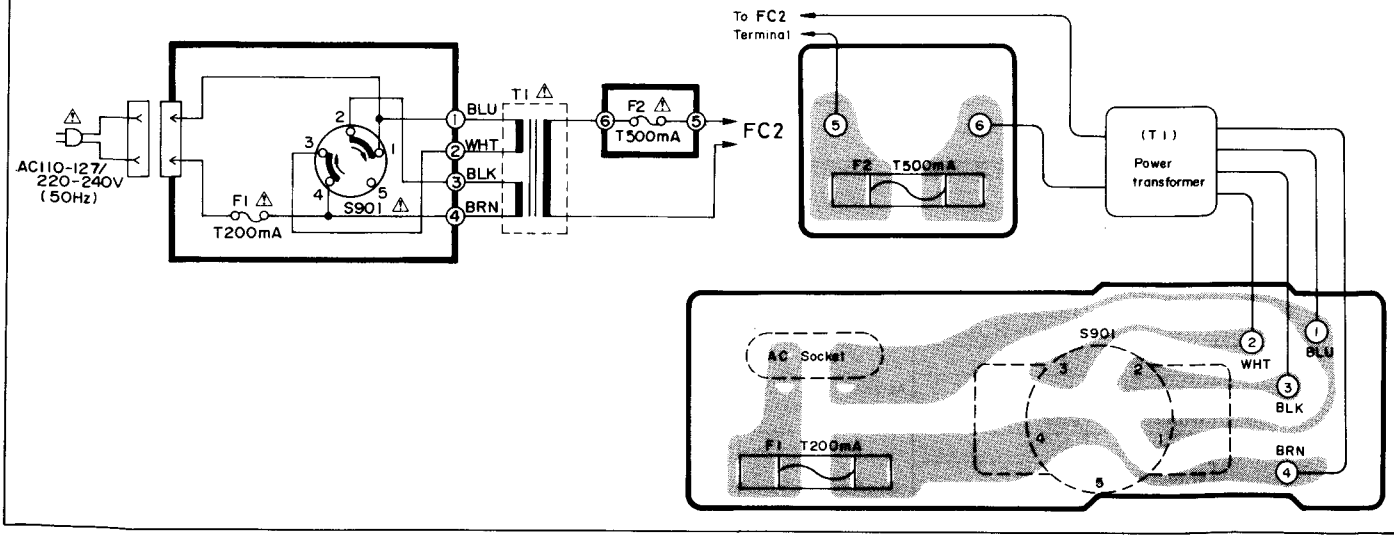
Change

Product for Continental Europe ([E], [EG], [EB], [EH], [EF], [Ei] and [EC] areas.)



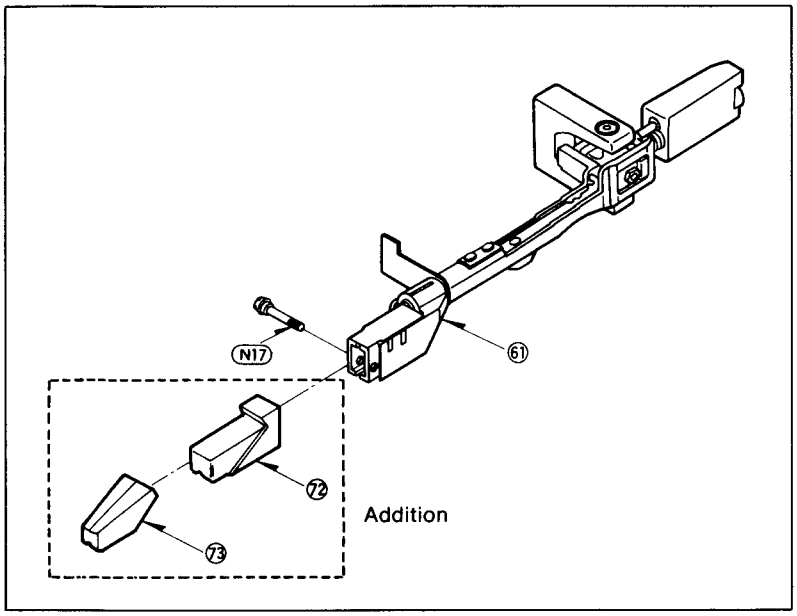
Product for United Kingdom and Australia ([EK] and [XL] areas)

Product for Southeast Asia, Occania, Africa, Middle Near East, Central South America, Far East PX, European Military and European Audio Club. ([XA], [PA], [PE], and [PC] areas.)



■ EXPLODED VIEW

• Addition of cartridge and stylus



■ REPLACEMENT PARTS LIST

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ -marked parts are used for black only, while ○ -marked parts are for silver type only.
4. Part other than Ⓚ -and ○ -marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area.
   Parts without these indications can be used for all areas.
6. The "Ⓢ" mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part. No.	Description
INTEGRATED CIRCUITS		
IC1	AN78M12	Regulator
IC2	DN6838B	Hall IC
IC101	AN6639	Turntable Drive
IC301	MN1402FPG	Microcomputer
IC302	MN4027B	Speed and Size Selector
IC401	AN6554	Arm Motor Control
TRANSISTORS		
Q1	2SD638	Regulator
Q301, 303 306 313~316 319, 320 321	2SD636	Switching
Q304	2SD892	Switching
Q305, 311 312	2SB641	Switching
Q401, 402	2SD1226M	Arm Motor Drive
Q403, 404	2SD1153	Arm Motor Drive
DIODES		
D1 ⚠	SVDS1WB40	Rectifier
D2	MA4056	5.6V Zener
D101	MA1075	7.5V Zener
D301	MA4062	6.2V Zener
D302, 305 307	SVDGL-9PG2	LED
D303, 304 306, 308	SVDGL-9HY82	LED
D501 Ⓢ 701	MA162A	Switching
D502	SVDSLV31VC3	LED

Ref. No.	Part. No.	Description
OSCILLATORS		
X101	SVFCSB525P	525 kHz
SWITCHES		
S1 ⚠	SFDSC02N02	Power
S301~306	EVQQS405K	Operation
S307	SFDSC02N02	Record Detector
S601	SFDSC02N03	Rest
S901 ⚠ [XA, PA, PE, PC only]	SFDSHXW225-3	Voltage Selector
PHOTO INTERRUPTERS		
PC501	0N1186	Offset Angle Detecting
HALL ELEMENTS		
H101, 102	0H-002	Turntable Position Detector
VARIABLE RESISTORS		
VR301	EVN61AA00B54	Clock Frequency Adjustment, 50 kΩ (B)
VR501	EVNK0AA00B53	Servo Gain Adjustment, 5kΩ (B)
RELAYS		
RL701	SFDYQ11N02	Muting

Ref. No.	Part. No.	Description
POWER TRANSFORMERS		
T1 [EK, XL] ⚠	SLT48DTE13E	Power Source
T1 [XA, PA] [PE, PC] ⚠	SLT57DT7E	Power Source
T1 [other] ⚠	SLT48DT10E	Power Source
FUSES		
F1 [XA, PA] [PE, PC] only ⚠	XBA2C02T1B	250V, T200mA
F1 [other] ⚠	XBA2C05T1B	250V, T500mA
F2 [XA, PA] [PE, PC] only ⚠	XBA2C05T1B	250V, T500mA
CABINET AND CHASSIS PARTS		
1	SFADC11N01E	Dust Cover (1)
1-1	SFGZJ02N01	Rubber Cushion (2)
2	SFGZC02N01	Rubber Cushion (2)
3	SFUMC02N14	Latch, Dust Cover (2)
4	SFUMQ06N22	Latch, Dust Cover (2)
5 ○	SFACC11N01E	Cabinet (1)
5 Ⓚ	SFACC11N21E	Cabinet (1)
5-1 ○	SFKBBD2N01	Badge (1)
5-1 Ⓚ	SFKBBD2N21	Badge (1)

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Ref. No.	Part. No.	Description	
6 [XA, PA, PE, PC]	SFGCQ06X01	Rubber Cushion	(2)
6 [other]	SFGCQ06N02	Rubber Cushion	(2)
7	SFKKC11S01	Ornament Plate	(1)
8	SRKTK15N26	Knob, Power	(1)
9	SFKTC11N01	Knob, Operation	(1)
10	SFUPC13N01	Guide, Knob	(1)
11	SFUMC13N01	Holder	(1)
12	SFDJC11N02E	Connector Ass'y (5P)	(1)
13	SFDJC02N05E	Connector Ass'y (7P)	(1)
14	SFQCC05N01	Spring	(4)
15	SFGAJ02N01	Insulator	(4)
16	SFAUC13N01	Bottom Cover	(1)
17	SFGBC10-01	Belt, Tonearm Drive	(1)
18	SFUMQ06N06A	Worm Ass'y	(1)
19	SFMHC02N02R	Motor	(1)
20	SFUMC02N05	Lever, Rest Switch	(1)
21	SFUMC02N13	Holder, Rest Switch	(1)
22	SFUZC05N02E	Rope Ass'y	(1)
23	SFUMQ06N07	Clamper	(1)
24	SFXJC02N03	Guide Rail	(1)
25	SFUMC05N22	Pulley	(1)
26	SFGCC05N05	Rubber Cushion	(2)
27	SFQHQ34N22	Spring	(1)
28	SFUZC02N01	Rod, Rest Switch	(1)
29	SFUMC02N06	Base, Rest Switch	(1)
30	SFUMC02N07	Motor Cover	(1)
31	SFUMUL11R03	Wheel, Tonearm Drive	(1)
32	SFUPBL3N11E	Base Motor	(1)
33	SFUMC02N10	Holder, Lead Wire	(1)
34	SFUMC02N12	Holder, Lead Wire	(1)
35	SFUMV05N23	Cap, Pulley	(1)
36	SFUPC02N03	Guide	(1)
37	SFATQ06N01E	Hinge	(2)
38	SFUKC13N01E	Base, Tonearm	(1)
39	SFDJJ02N04E	Jack, Phono Output	(1)
40 ○ Except [XA, PA, PE, PC]	SFACC13N012	Cover	(1)
40 Ⓚ Except [XA, PA, PE, PC]	SFACC13N212	Cover	(1)
41 [XL] ⚠	SFDJHSC0491	AC Socket	(1)
41 ⚠ [XA, PA, PE, PC]	SFDJHSC04912	AC Socket	(1)
41 ⚠ [other]	SFDJHSC0516	AC Socket	(1)
42 [XA]	SFNNC11X01	Name Plate	(1)
42 [EG]	SFNNC11R01	Name Plate	(1)
42 [PC]	SFNNC11P02	Name Plate	(1)
42 [E, EC]	SFNNC11S01	Name Plate	(1)
42 [EK, XL]	SFNNC11G01	Name Plate	(1)
42 [PA, PE]	SFNNC11P01	Name Plate	(1)
42 [other]	SFNNC11Q01	Name Plate	(1)

Ref. No.	Part. No.	Description	
43 ○	SFACC11N011	Cover	(1)
43 Ⓚ	SFACC11N211	Cover	(1)
46	SFUMC02N33	Lever, Record Detector	(1)
47	SFGCC02N03	Rubber Cushion	(1)
48	SFUMC02N35	Holder, Switch	(1)
49	SFWEJ02N01	45 rpm Adaptor	(1)
50	SFQAC06N01	Spring, 45 rpm Adaptor	(1)
51	SFTGBL3N01	Turntable Mat	(1)
52	SFTEJ02N01	Turntable Platter	(1)
53	SFUMC05N11A	Record Detector Ass'y	(1)
54	SFTMC07-01E	Rotary Magnet Ass'y	(1)
55	SFMGQ34N01	Cover, Stator Coil	(1)
56	SFMZC06N01R	Stator Frame Ass'y	(1)
57	SFGCQ06N03	Rubber Cushion, Dust Cover	(2)
58	SFQA913-01	Spring	(1)

TONEARM PARTS

61	SFPAM0L101A	Tonearm Ass'y	(1)
62	SFPKD00301R	Tonearm Base Ass'y	(1)
63	SFPGML1101	Rubber, Tonearm Guide	(2)
64	SFPGM00301	Rubber Cap	(1)
65	SFPSP00302	Spring	(2)
66	SFPSP00504	Spring, Arm Lift	(1)
67	SFDZC05N01E	Cueing Solenoid Ass'y	(1)
68	SFPCS0V501	Indicator Cover	(1)
69	SFPAK0Q601	Indicator Plate	(1)
70	SFPGM0Q601	Rubber, LED	(1)
71	SFPCSJ0201	Holder, LED	(1)
72 [PA, PE, PC]	EPC-P33S	★ Cartridge	(1)
72 [other]	EPC-P30S	★ Cartridge	(1)
73 [PA, PE, PC]	EPS-33CS	★ Stylus	(1)
73 [other]	EPS-30CS	★ Stylus	(1)

SCREWS, WASHERS AND NUTS

N1	Ⓢ	XTV3+10BFN	Screw, ⊕3×10	(6)
N2		XTW3+14QFYR	Screw, ⊕3×14	(6)
N3	Ⓢ	XTV3+6BFN	Screw, ⊕3×6	(4)
N4		SFXWC06N02	Washer	(1)
N5		XSN3+5S	Screw, ⊕3×5	(3)
N6		SFXGQ06N01	Screw	(2)
N7		XTW3+14TFZ	Screw, ⊕3×14	(2)
N8		XTV3+6BFZ	Screw, ⊕3×6	(1)
N9	Ⓢ	XTV3+6JFZ	Screw, ⊕3×6	(13)
N10		CSTW3	Washer	(2)
N11	Ⓢ	XWE3A8BW	Washer, φ3	(2)
N12		XWE3D10	Washer	(1)
N13		XNC3HS	Nut	(1)
N14		XSN3+30S	Screw, ⊕3×30	(1)
N15	Ⓢ	XTV3+8BFN	Screw, ⊕3×8	(1)
N16		XTN16+10G	Screw, ⊕1.6×10	(1)
N17		SFPEV0Q601	Screw, Cartridge	(1)
N18		XYN2+C4FZ	Screw, ⊕2×4	(1)
N19		SFXN623-1	Nut	(1)

Ref. No.	Part. No.	Description	
N20	SFPTN00301	Screw	(1)
N21 Ⓢ	XSN3+12S	Screw, ⊕3×12	(1)
N22 Ⓢ	XWA3B	Washer, φ3	(1)
N23	XTN23+6JFZ	Screw, ⊕2.3×6	(1)
N24	XTV3+6JFZ	Screw, ⊕3×6	(1)
N25	XTV3+8BFZ	Screw, ⊕3×8	(1)

ACCESSORIES

A1 [EK]	SFNUC11G01	Instruction Book	(1)
A1 [Ei]	SFNUC11I01	Instruction Book	(1)
A1 [PA, PE, PC]	SFNUC11P01	Instruction Book	(1)
A1 [E, EB, EH, EC]	SFNUC11S01E	Instruction Book	(1)
A1 [other]	SFNUC11X01	Instruction Book	(1)
A2	SFDHC05N01	Output Cord	(1)
A3	SFDLJ02N11E	Ground Wire	(1)
A4 [EK] ⚠	SFDAC05G02	AC Cord	(1)
A4 [XL] ⚠	SFDAC05L01	AC Cord	(1)
A4 [XA] ⚠	SFDAC05X02	AC Cord	(1)
A4 ⚠ [PA, PE, PC]	SFDAC05N01	AC Cord	(1)
A4 [other] ⚠	SFDAC05E02	AC Cord	(1)
A5 [XA] only ⚠	SFDKI19118	Plug	(1)
A6 ⚠ [PA, PE, PC] only	QJP0603S	Adaptor	(1)

PACKING

P1 ○ [EF] only	SFHPC11C01	Carton Box	(1)
P1 ○ [other]	SFHPC11M01	Carton Box	(1)
P1 Ⓚ [EF] only	SFHPC11F21	Carton Box	(1)
P1 Ⓚ [other]	SFHPC11S21	Carton Box	(1)
P2	SFHHC13N01	Pad, Front	(1)
P3	SFHHC13N02	Pad, Rear	(1)
P4	SFHKC05N01	Clamper, Turntable Platter	(2)
P5	SFHKQ06N01	Spacer, Tonearm	(1)
P6	SFHSC13N01	Spacer, Dust Cover	(1)
P7	SFYH60X60	Polyethylene Bag	(1)
P8	SFYH17X16	Polyethylene Bag, Cord	(1)
P9	SFYF33B35	Polyethylene Bag, Turntable Mat	(1)
P10	SFHDD05N01	Pad, Turntable Mat	(1)

Color	Areas	Color	Areas
(S) (K)	[E] ..... Switzerland and Scandinavia.	(S) (K)	[XA] .... Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
(S) (K)	[EK] .... United Kingdom.		
(S) (K)	[XL] .... Australia.		
(S) (K)	[EG] ... F.R. Germany.		
(S) (K)	[EB] .... Belgium.	(S) (K)	[PA] .... Far East PX.
(S) (K)	[EH] .... Holland.	(S) (K)	[PE] .... European Military.
(S) (K)	[EF] .... France.	(S) (K)	[PC] .... European Audio Club.
(S) (K)	[Ei] ..... Italy.		
(S) (K)	[EC] .... Czechoslovakia.		

Printed in Japan
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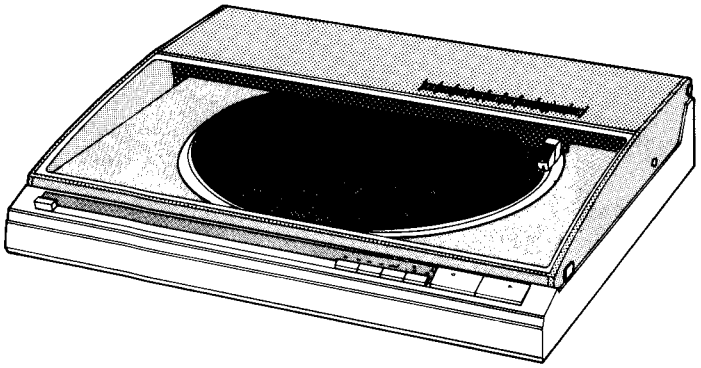
ORDER NO. HAD85032457C1
A2

Service Manual

Turntable System
SL-L1



Color

(S)...Silver Type

Area

[M].....U.S.A.
[MC].....Canada

T4P is the standard mark for the "P-mount" plug-in-connector system. Products carrying this mark are interchangeable and compatible with each other.

SPECIFICATIONS

Specifications are subject to change without notice for further improvement.
Weight and dimensions shown are approximate.

■ Turntable section

Type: Direct drive
Automatic turntable
Features: Auto start/Auto lead-in,
Auto return,
Auto stop,
Forward search play,
Backward search play,
Repeat play,
Record presence detection
Drive method: Direct drive
Motor: Brushless DC motor
Turntable platter: Aluminum die-cast
Diameter 30 cm (12")
Turntable speeds: 33-1/3 rpm and 45 rpm
Wow and flutter: 0.012% WRMS*
0.025% WRMS (JIS C5521)
±0.035% peak
(IEC 98A Weighted)

*Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble: −56 dB (IEC 98A Unweighted)
−78 dB (IEC 98A Weighted)

■ Tonearm section

Type: Linear tracking tonearm
4-pivot gimbal suspension T4P
Effective length: 10.5 cm (4-1/8")
Tracking error angle: Within ±0.1°
Effective mass: 9 g (including cartridge)
Resonance frequency: 12 Hz
Tonearm drive motor: DC motor
Stylus pressure: 1.25 g (Fixed)
Applicable cartridge weight: 6 g
Phono cable capacitance: 150 pF

■ General

Power supply: AC 120V, 60 Hz
Power consumption: 10 W
Dimensions: 43 × 9 × 35 cm
(W × H × D) (16-15/16" × 3-17/32" × 13-25/32")
(Maximum height when the dust cover is open)
39 cm (15-11/32")
Weight: 4.9 kg (10.8 lb.)

Technics

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Secaucus. New Jersey 07094

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Ave, 65 De Infanteria, KM 9.7
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Carolina, Puerto Rico 00630

SL-L1

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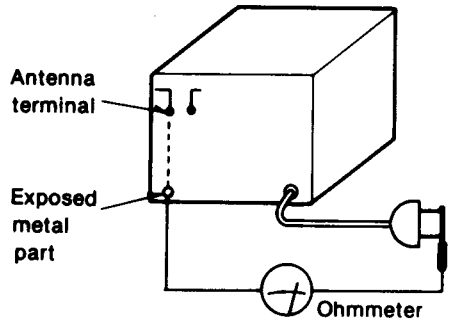
■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

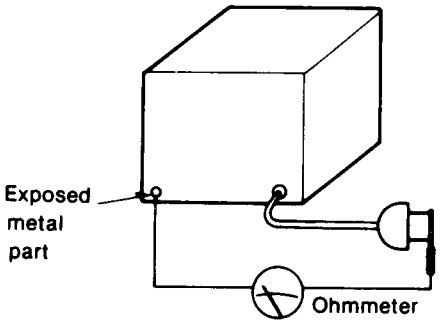
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ

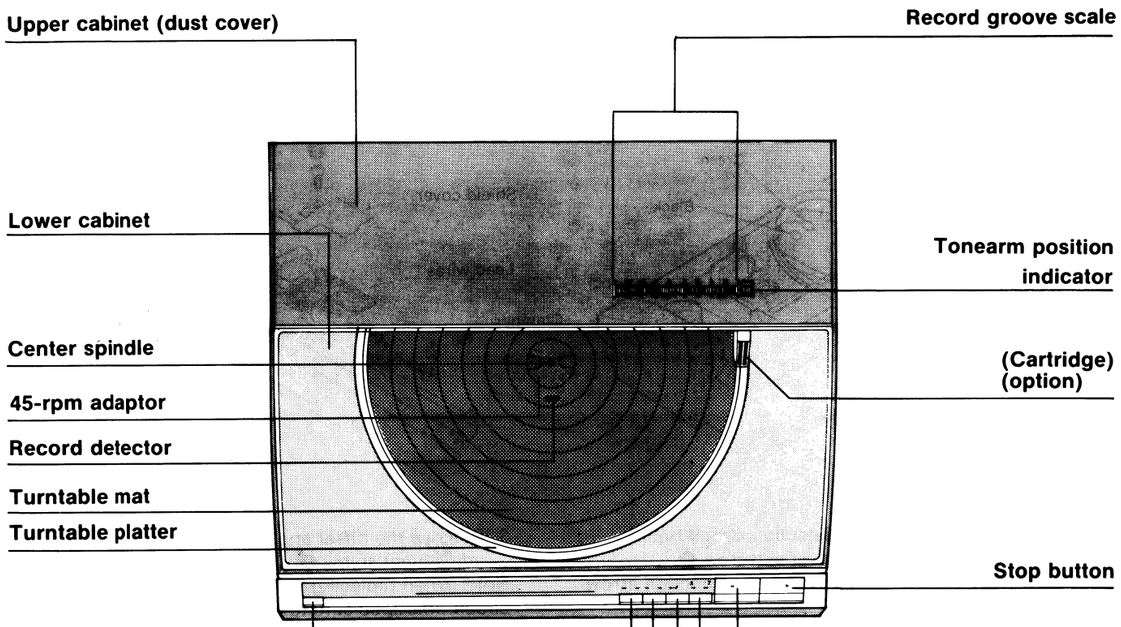


(Fig. B)

Resistance = Approx ∞

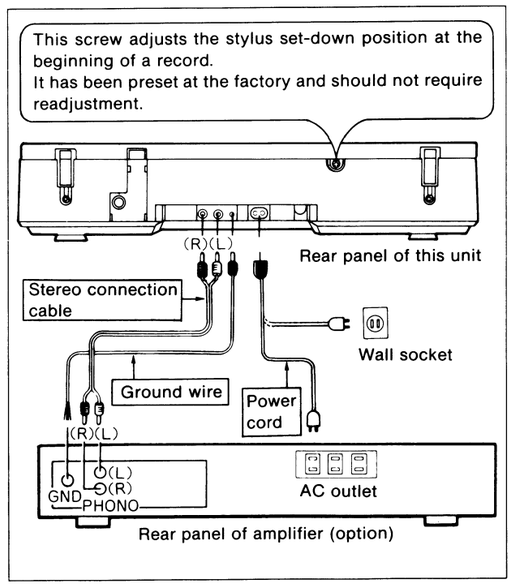
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ LOCATION OF CONTROLS



■ CONNECTIONS

1. Use the stereo connection cable to connect the turntable to your amplifier or receiver. Be sure that the white plugs are connected to the left channel jacks and the red plugs are connected to the right channel jacks.
2. Plug the ground wire into the turntable's ground jack and connect the end of the wire to the amplifier or receiver's ground (GND) screw.
   Note that hum may occur if you neglect to connect the ground wire.
3. Plug the female end of the power cord into the turntable's AC IN jack and plug the other end into a wall socket.



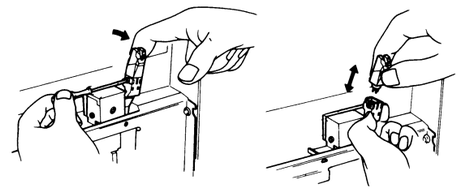
■ DISASSEMBLY INSTRUCTIONS

Ref. No 1 — **How to remove the cartridge**

Procedure 1

1. Open the upper cabinet.
2. Remove the setscrew and pull out the cartridge.

Note: When attaching the cartridge again, match the tonearm connector with the cartridge pin, then completely insert it and tighten the setscrew.

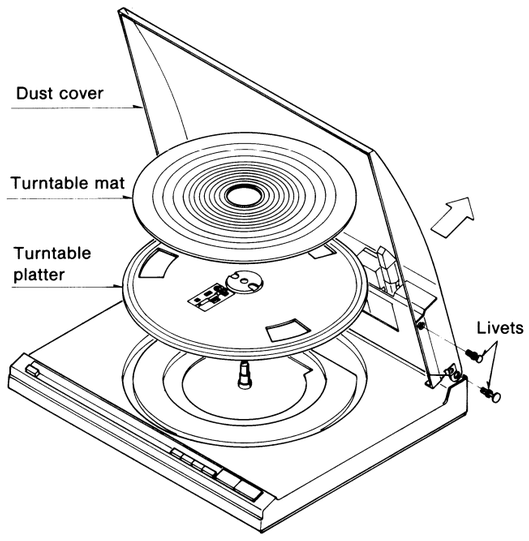


Ref. No 2 — **How to remove the turntable platter**

Procedure 2

1. Open the upper cabinet.
2. Remove the turntable mat, and lift the turntable platter.

Note:
- When removing the turntable platter, it is not necessary to remove the 45 rpm adaptor.
- The turntable platter is tightly fitted to the center spindle. When removing the turntable platter, take care not to damage the upper cabinet.

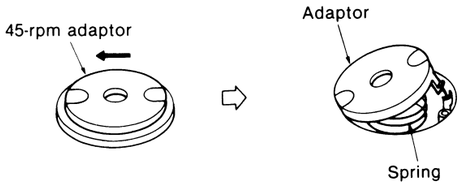


★ **To remove the dust cover**
1. Pull out the 4 right and left rivets.
2. Remove the dust cover in the direction of the arrow.

Ref. No 3 — **How to remove the 45 rpm adaptor**

Procedure 2 ➧ 3

- The 2 adaptor claws fit into the turntable platter, so remove the 45 rpm adaptor by pushing it in the direction of the arrow.

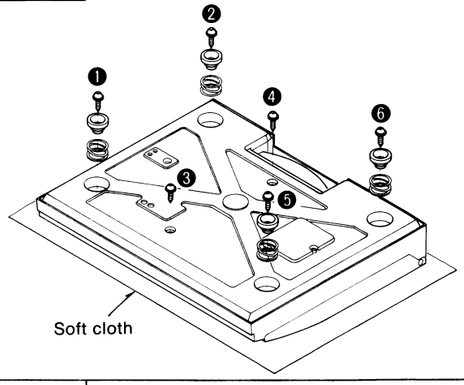


Note: When removing the 45 rpm adaptor, remove the turntable platter; otherwise the 45 rpm adaptor claws will be broken.

Ref. No 4 — **How to remove the bottom board**

Procedure 2 ➧ 4

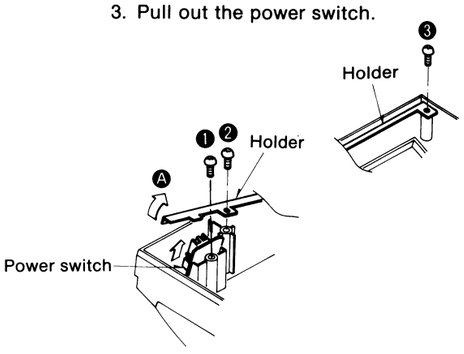
1. Turn over the unit on a soft cloth.
2. Remove the 6 setscrews (❶ ~ ❻).



Ref. No 5 — **How to remove the power switch**

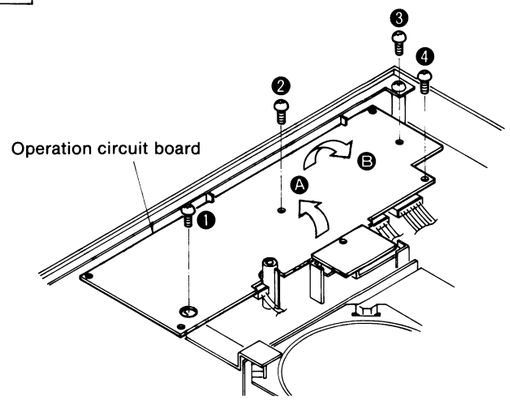
Procedure 2 ➧ 4 ➧ 5

1. Remove the 3 setscrews (❶ ~ ❸).
2. Lift the holder slightly in the direction of arrow Ⓐ.
3. Pull out the power switch.

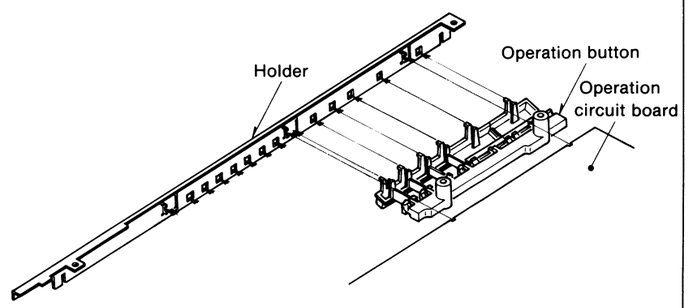


Ref. No 6	How to remove the operation circuit board
Procedure 2 ➧ 4 ➧ 6	

1. Remove the 4 setscrews (❶ ~ ❹).
2. Remove the operation circuit board in the direction of arrows (Ⓐ, Ⓑ).

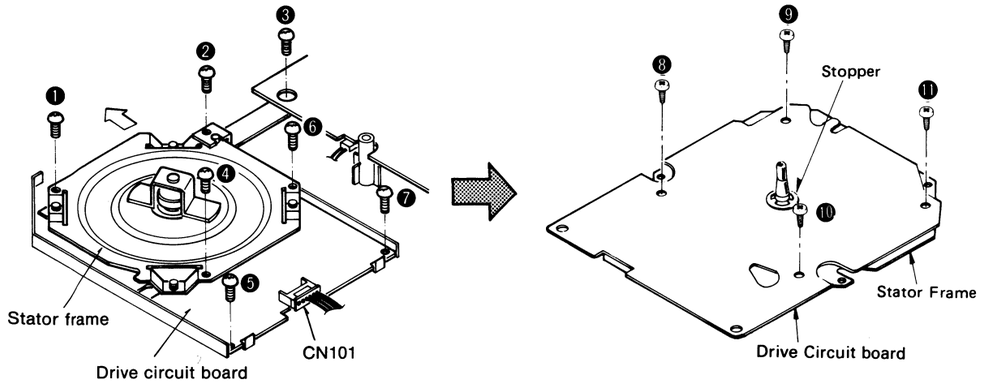


★ **Caution when replacing the board**
1. The operation circuit board fits into guide rails.
2. Match the operation button to the hole in the holder.



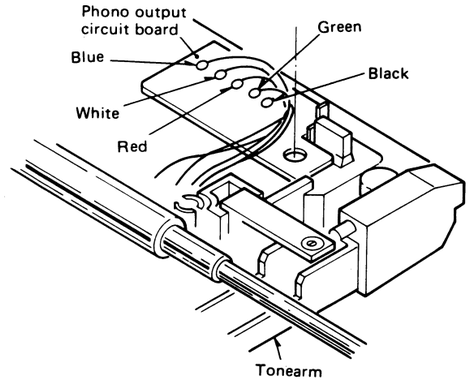
Ref. No 7	How to remove the drive circuit board and stator frame
Procedure 2 ➧ 4 ➧ 7	

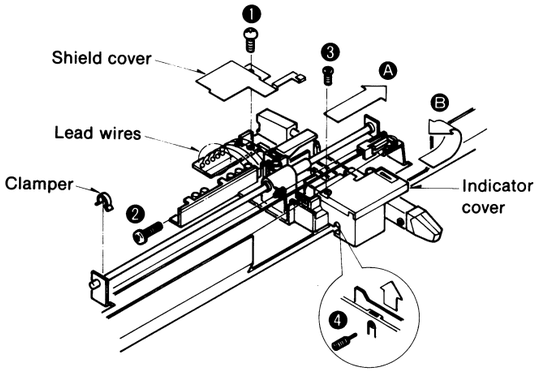
1. Remove the 7 setscrews (❶ ~ ❼).
2. Pull out the connector CN101.
3. Remove the stator frame in the direction of the arrow.
4. Cut off the stopper with nippers.
5. Remove the 4 setscrews (❽ ~ ⓫).
6. Then, separate the drive circuit board and stator frame.



Ref. No 8	How to remove the tonearm
Procedure 2 ➧ 4 ➧ 8	

1. Remove the dust cover.
2. Remove the shield cover setscrew ❶.
3. Unsolder the 5 lead wires.
4. Turn the worm gear with your fingers to move the tonearm inward.
5. Remove the tonearm setscrew ❷.
6. Remove the guide rail clamper, and pull out the guide rail.
7. Remove the tonearm in the direction of arrow Ⓐ.





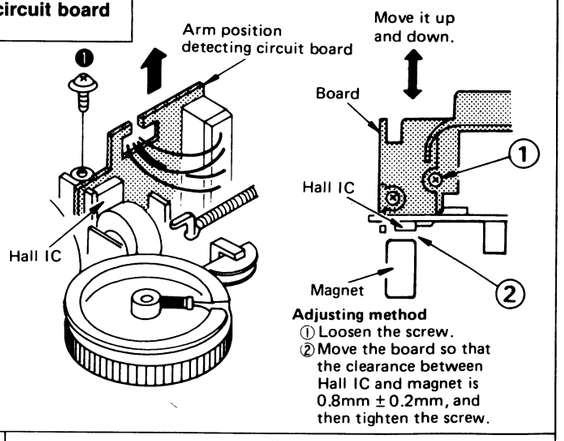
★ **To remove offset angle detection circuit board**
1. Remove the indicator cover setscrew ❸.
2. Remove the indicator cover in the direction arrow Ⓑ.
3. Remove the offset angle detection circuit board adjustment screw ❹.

Note: When replacing the offset angle detection circuit board, be sure to adjust the servo gain and offset voltage.

Ref. No 9	How to remove the arm position detecting circuit board
Procedure 2 ➧ 4 ➧ 9	

1. Remove the dust cover.
2. Remove the arm position detecting circuit board setscrew ❶.

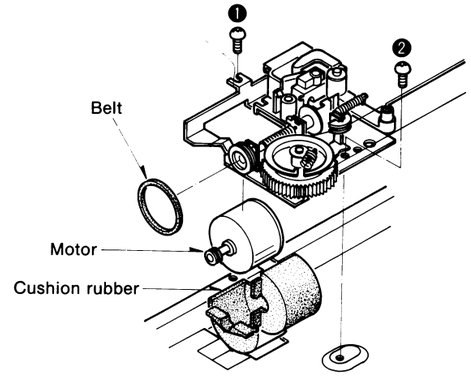
Note:
Clearance between the Hall IC and the magnet should be 0.8 mm ±0.2 mm.


Arm position detecting circuit board
Move it up and down.
Board
Hall IC
Hall IC
Magnet
Adjusting method
① Loosen the screw.
② Move the board so that the clearance between Hall IC and magnet is 0.8mm ± 0.2mm, and then tighten the screw.

Ref. No 10	How to remove the arm drive motor
Procedure 2 ➧ 4 ➧ 10	

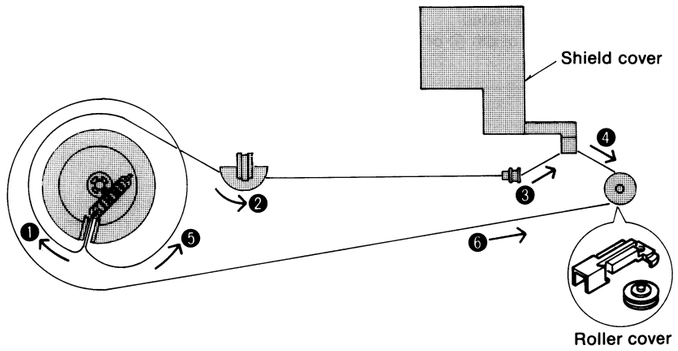
1. Remove the dust cover.
2. Remove the 2 setscrews (❶, ❷).
3. Unsolder the 2 lead wires from the motor.
4. Remove the belt and arm drive motor
5. Open the cushion rubber.

Note:
Connection of the arm drive motor
Red wire ..... (+) terminal of the arm drive motor.
Blue wire ..... (−) terminal of the arm drive motor.
- An arrow mark is the (−) terminal.



■ HOW TO SET THE TONEARM DRIVE ROPE

When setting the rope, follow the procedure given below.
1. Remove the dust cover.
2. Remove the roller cover.
3. Set the rope in the order of 1 ~ 6.
4. Fit the rope connector to the tonearm.
5. Set the roller cover and turn the worm gear by hand to see that the tonearm moves.



■ HOW TO REPLACE CHIPS

(Resistor, capacitor and jumper)

- **Removing procedure**

1. Completely remove the solder from both ends of the chip by use of solder suker.
2. Touch the soldering iron to the end of the chip as shown in Fig. **A** , then turn the tweezers in the direction of the arrow.

Do not re-use chip resistor or capacitor without color cord.

- **Replacing procedure**

1. Place solder on the foil where the chip is fitted.
   Then solder the chip by holding the soldering iron as shown in Fig. **B** .

Note:

1. If the chip jumper is removed, connect a coated lead wire to the part. (See Fig. **C**).
   Chip jumper is marked with "J" on the printed circuit board.

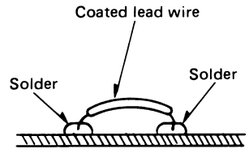


Fig. C

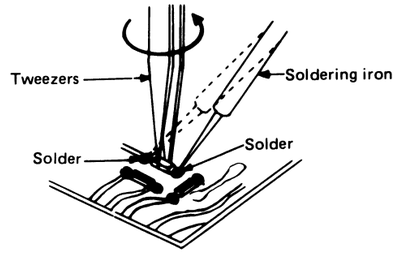


Fig. A

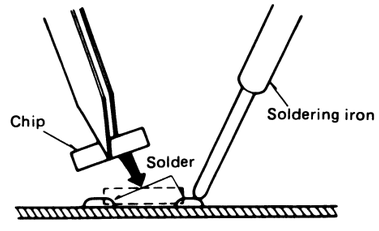


Fig. B

- **Note for replacing chips**

1. Do not heat the chip more than 3 seconds.
2. Do not rub the electrode against the chip.
3. Use the tweezers with care not to damage the surface of the chip.
4. It is desirable to use a pencil type soldering iron. And use soldering iron less than 60W.

■ MEASUREMENTS AND ADJUSTMENTS

- **Instruments used**

1. Oscilloscope
2. DC voltmeter
3. 30 cm record
4. Screwdriver

- **Caution**

To adjust servo gain and offset voltage.....
1. Remove the dust cover.
2. Disassembly the tonearm as in Fig. 4.

Step	Item	Preparations	Parts adjusted	Procedure
1	**Start position**	1) Put 30 cm record on turntable mat and close upper cabinet. 2) Set power switch to "on". 3) Push start button switch.	Start position adjust screw. (Fig. 1)	1) If stylus drops between tunes, turn adjust screw.
2	**Tonearm offset angle**	1) Open upper cabinet. 2) Set power switch to "on". 3) Push start button to move tonearm inside, then set power switch to "off".	Offset angle adjust screw. (Fig. 2)	1) Turn offset angle adjust screw so that tonearm center is aligned to V-groove of lift rod.
3	**Servo gain**	1) Connect DC voltmeter to CN303 terminal ③ (+) and ② (−) of operation circuit board (Fig. 3) 2) Set power switch to "on".	VR501 (Fig. 4)	1) Completely shift tonearm to the right. 2) Adjust VR501 so that output voltage is 3.6V.
4	**Offset voltage**	1) Connect DC voltmeter to CN303 terminal ③ (+) and ② (−) of operation circuit board (Fig. 3) 2) Set power switch to "on".	Offset voltage adjust screw. (Fig. 4)	1) Set tonearm to center. 2) Turn adjust screw so that output voltage is 1.8V.
5	**Clock frequency**	1) Connect IC301 (pin ⑦, ⑧, ⑨ and ⑩ shorted) of operation circuit board to pin ㉗ using a lead with a clip. 2) Connect oscilloscope to pin ④ of IC301.	VR301 (Fig. 3)	1) Set power switch to "on". 2) Adjust VR301 until cycle output waveform is 30μs±1μs.

- **Adjustment points**

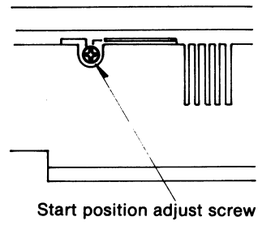


Fig. 1

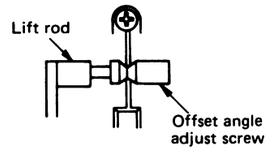


Fig. 2

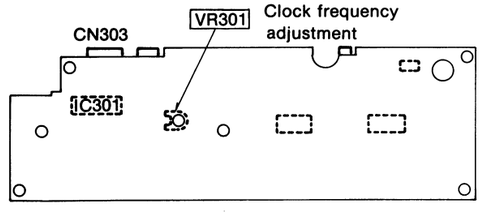


Fig. 3

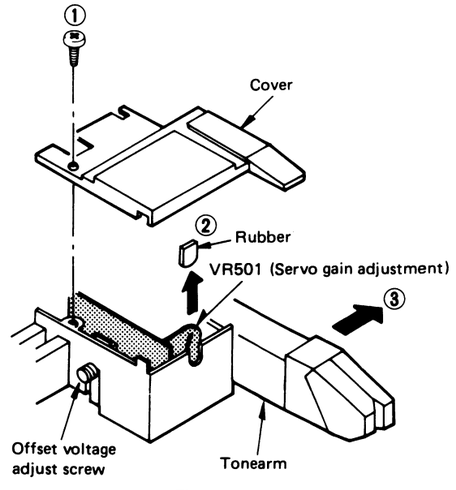


Fig. 4

① Remove the cover.
② Remove the rubber.
③ When adjusting the servo gain, set the tonearm in the direction of the arrow.

■ TROUBLESHOOTING

1. How to use the repair table (Fig. 5)

① Remove the bottom board.
② Remove the operation circuit board and connect the P.C.B. ground terminal to the chassis (Stator frame.)
③ Put the unit on the repair table.
④ Fit the turntable platter and put on the turntable mat.
⑤ Put on the record and check the circuits from under the unit.

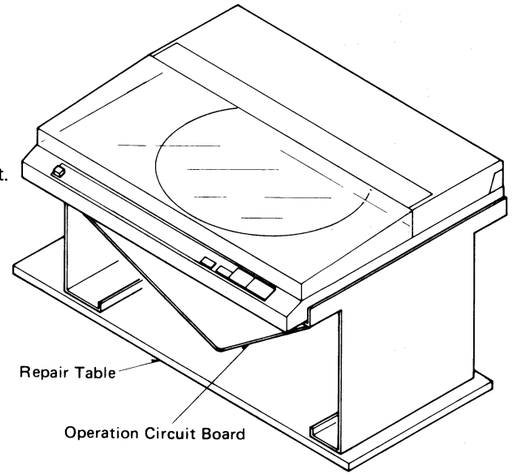


Fig. 5

2. How to raise the set (Fig. 6)

Note: Turntable platter is not fixed on the center spindle. Take care so that the turntable platter will not come loose. Also, take care allow the set to fall down.

① Remove the bottom board.
② Completely open the upper cabinet.
③ Fit the turntable platter.
④ Raise the unit and check the circuits.

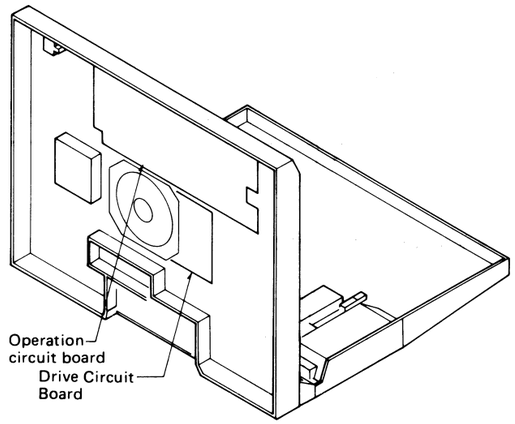


Fig. 6

3. How to turn over the set (Fig. 7)

Note: This purpose is to check the voltage of each circuit during stop of the turntable.

① Remove the turntable platter and turn over the unit.
② Remove the bottom board.
③ Turn the power switch "on" and check the voltage.

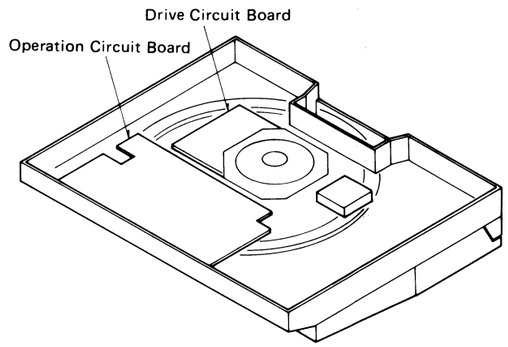


Fig. 7

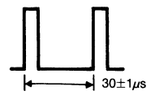
Turntable does not rotate

→ Power source circuit
1. AC 16.9V between FC2 terminals ① and ②.
2. DC voltage of regulator IC (IC1).
   ① 19.4V ② 0V ③ 12.0V
3. DC voltage of regulator transistor (Q1).
   Ⓒ 10.2V Ⓑ 5.6V Ⓔ 5.0V

→ T1, F1, S1, D1, IC1, Q1, D2, RF2 } defective

↓

Clock frequency
- IC301 pin ⑦, ⑧, ⑨, ⑩ and ㉗ connected.
- Waveform of pin ④ of IC301.



→ IC301, VR301, C301, R310 } defective

↓

Push start switch (S301). →

Start/stop circuit
1. DC voltage of pin ㉔ of IC301. (4.7V)
2. DC voltage of collector of Q301. (0.6V)
3. DC voltage of pin ⑫ of IC101. (0.6V)
4. Are CN101 connector and BT301 connector connected?

→ S301, IC301, Q301, IC101, Connectors } defective

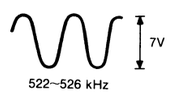
↓

Drive coil and Hall element
1. Conduction check of drive coils (A1 ~ A4)
2. DC voltage of Hall elements (H101, H102)
   ① 3.8V ② 7.6V ③ 3.8V ④ 0V

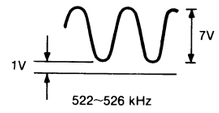
→ IC101, Drive coil, H101, H102 } defective

Unstable rotation →

Oscillator circuit
1. Waveform of pin ① of IC101



2. Waveform of pin ② of IC101



→ X101, IC101, C101, C102 } defective

Speed cannot be changed →

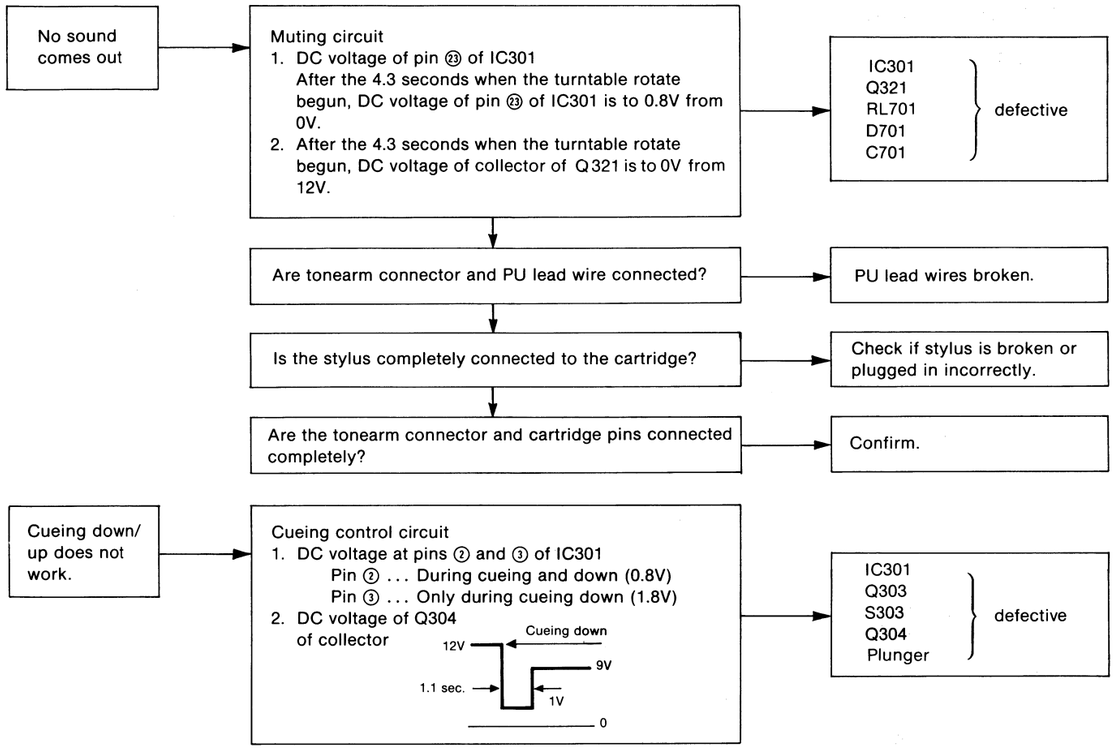
Speed selector circuit
1. DC voltage each pin of IC302
   ⑬ pin ..... Push S304 0V → 5V
   ⑭ pin ..... Push S304 0V → 5V
   ⑮ pin ..... Push S304 5V → 0V
2. DC voltage of collector of Q319
   33 rpm ..... 1.8V, 45 rpm 0V
3. DC voltage of pin ⑯ of IC101
   33 rpm ..... 1.8V, 45 rpm 0V
4. Are CN101 connector and BT301 connector connected?

→ S304, Q316, IC302, Q319, IC101, Connectors } defective

Record size cannot be changed →

Record size selector circuit
1. DC voltage each pin of IC302
   ③ pin ..... Push S305 0V → 5V
   ② pin ..... Push S305 0V → 5V
   ① pin ..... Push S305 5V → 0V
2. DC voltage of pin ⑭ of IC301.
   30 cm ..... 5V, 17 cm 0V

→ S305, Q315, Q312, IC301 } defective



■ RESISTORS AND CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. This "Ⓢ" mark is service standard parts and may differ from production parts.
4. Unless otherwise specified.
All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ
All capacitors are in MICROFARADS(μF), P = 10^{-6}μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value
ERG	1	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	F : ±1%
ERG : Metal Oxide	1 : 1W	J : ±5%
ERX : Metal Film	2 : 2W	G : ±2%

ERD2FCG□□□ → Fuse type carbon (1/4W)
ERDS2TJ□□□ → Small type carbon (1/4W)

Capacitor Type	Voltage: ECEA Type	Voltage: Others	Tolerance
ECEA : Electrolytic	1A : 10V	1H : 50V DC	J : ±5%
ECKD : Ceramic	1C : 16V	2H : 500V DC	K : ±10%
ECQM : Polyester	1E : 25V	1 : 100V	Z : +80%, −20%
ECCD : Ceramic	1V : 35V		P : +100%, −0%
ECKD : Ceramic	1H : 50V		M : ±20%
ECEB : Electrolytic	1J : 63V		
ECFR : Ceramic	50 : 50V		
ECFB : Ceramic			

Ref. No.	Part No.	Value
RESISTORS		
R1	ERDS2TJ681	680
R2	ERDS2TJ221	220
R101	ERDS2TJ101	100
R102	ERX1ANJ2R7	2.7
R103	ERDS2TJ822	8.2K
R105	ERDS2TJ101	100
R106, 107	ERDS2TJ471	470
R301	ERDS2TJ472	4.7K
R302, 303	ERDS2TJ272	2.7K
R304, 305	ERDS2TJ272	2.7K
R306	ERDS2TJ102	1K
R307	ERDS2TJ821	820
R308	ERDS2TJ271	270
R310	ERDS2TJ562	5.6K
R312	ERDS2TJ153	15K
R313	ERDS2TJ472	4.7K
R314	ERDS2TJ222	2.2K
R315	ERDS2TJ562	5.6K
R316	ERDS2TJ223	22K
R317	ERDS2TJ103	10K
R318	ERDS2TJ272	2.7K
R320	ERDS2TJ272	2.7K
R321, 322	ERDS2TJ331	330

Ref. No.	Part No.	Value
R323	ERDS2TJ562	5.6K
R324	ERDS2TJ272	2.7K
R331, 332	ERDS2TJ393	39K
R333	ERDS2TJ331	330
R335, 336	ERDS2TJ393	39K
R337	ERDS2TJ331	330
R339	ERDS2TJ103	10K
R340	ERDS2TJ104	100K
R341	ERDS2TJ101	100
R342	ERDS2TJ103	10K
R343	ERDS2TJ104	100K
R344	ERDS2TJ101	100
R345	ERDS2TJ473	47K
R346	ERDS2TJ102	1K
R347	ERDS2TJ103	10K
R348	ERDS2TJ104	100K
R350	ERDS2TJ393	39K
R351	ERDS2TJ331	330
R352, 353	ERDS2TJ102	1K
R354	ERDS2TJ154	150K
R355	ERDS2TJ272	2.7K
R401, 402	ERDS2TJ683	68K
R403	ERDS2TJ472	4.7K
R404	ERDS2TJ122	1.2K
R405	ERDS2TJ152	1.5K

Ref. No.	Part No.	Value
R406	ERDS2TJ102	1K
R407	ERDS2TJ224	220K
R408	ERDS2TJ152	1.5K
R409	ERDS2TJ102	1K
R410	ERDS2TJ224	220K
R411	ERDS2TJ272	2.7K
R412	ERDS2TJ681	680
R501	Ⓢ ERD25FJ681	680
R502	Ⓢ ERD25FJ391	391
R503	Ⓢ ERD25FJ471	470
RF1	⚠ ERD2FCG180	18
RF2	⚠ ERD2FCG330	33
CAPACITORS		
C1, 2	⚠ ECQM1223KZ	0.022
C3	⚠ ECQM1223KZ	0.022
C4	ECEB1VU102	1000
C5, 6	ECQM1H104KV	0.1
C101	ECQM1H562JV	0.0056
C102	ECCD1H181JC	180P
C104	⚠ ECEA1AN470S	47
C105	⚠ ECEA1AN330S	33
C106	ECFR1H104ZF	0.1
C107	⚠ ECEA1CN100S	10

Ref. No.	Part No.	Value
C108	⚠ ECEA1AN330S	33
C109	ECEA1CU330	33
C111	ECFR1H104ZF	0.1
C301	ECCD1H680K	68P
C302	ECQM1H104KV	0.1
C303	ECKD1H103ZF	0.01
C304	ECEA0JU470	47
C305	ECEA1HU3R3	3.3
C306	ECFR1E104ZFM	0.1
C307	ECQM1H223KV	0.022
C308, 309	ECFR1E104ZFM	0.1
C310	ECKD1H103ZF	0.01
C311, 312	ECEA1HU010	1
C313	ECEA1HU010	1
C314	ECFR1E104ZFM	0.1
C401, 402	ECQM1H223KV	0.022
C601	ECFB1B104ZM	0.1
C701	ECEA1CU100	10

■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
Components identified by a ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the columns of description stand for the quantity per set.

Area

[M]..... U.S.A.
[MC]..... Canada

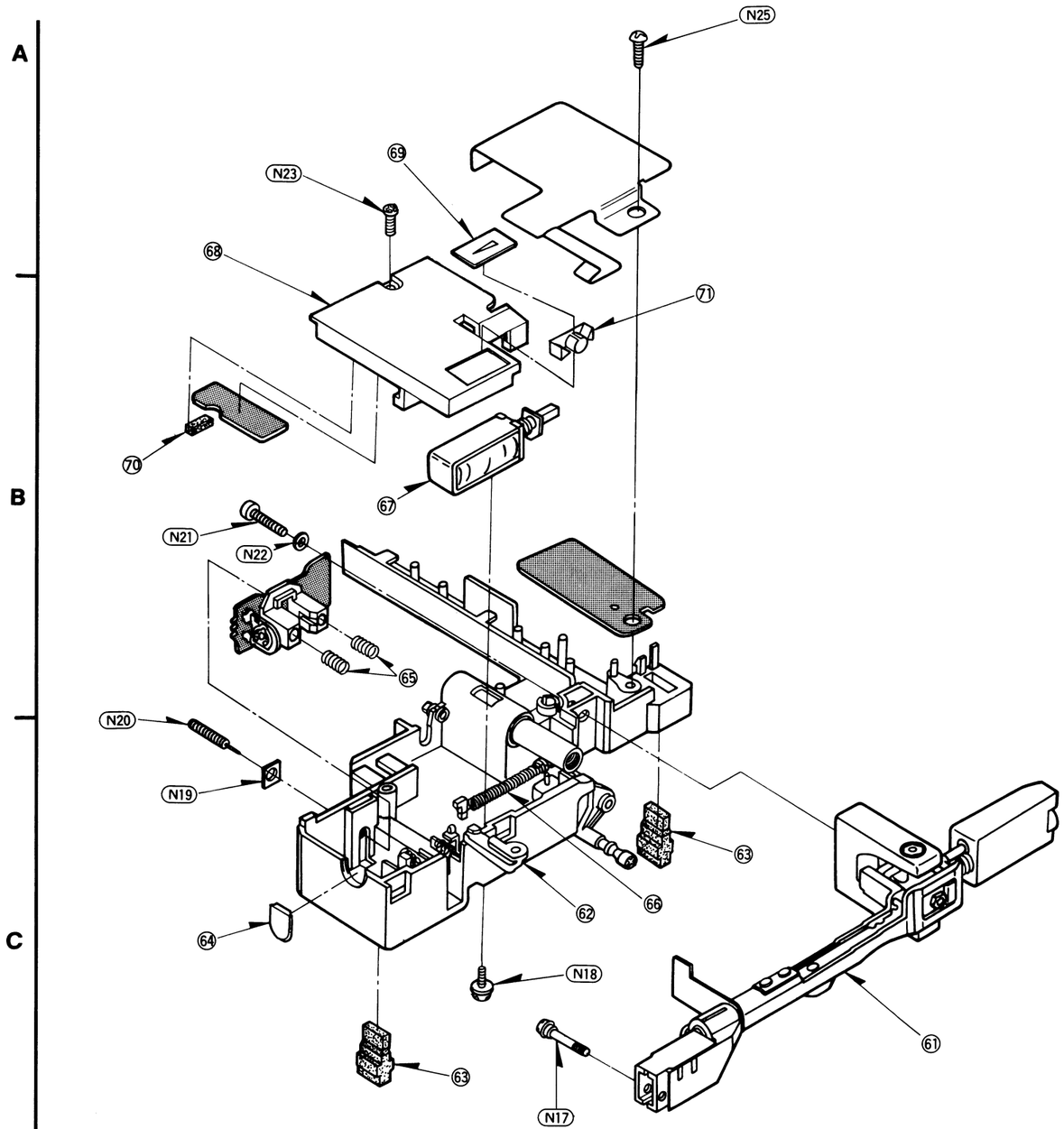
Ref. No.	Part. No.	Description
INTEGRATED CIRCUIT		
IC1	AN78M12	Regulator
IC2	DN6838B	Hall IC
IC101	AN6639	Turntable Drive
IC301	MN1402FPG	Microcomputer
IC302	MN4027B	Speed and Size Selector
IC401	AN6554	Arm Motor Control
TRANSISTOR		
Q1	2SD638	Regulator
Q301, 303 306 313~316 319, 320 321	2SD636	Switching
Q304	2SD892	Switching
Q305, 311 312	2SB641	Switching
Q401, 402	2SD1226M	Arm Motor Drive
Q403, 404	2SD1153	Arm Motor Drive
DIODE		
D1	⚠ SVBS1WB40	Rectifier
D2	MA4056	5.6V Zener
D101	MA1075	7.5V Zener
D301	MA4062	6.2V Zener
D302, 305 307	SVDGL-9PG2	LED
D303, 304 306, 308	SVDGL-9HY82	LED
D501 Ⓢ 701	MA162A	Switching
D502	SVDSLV31VC3	LED
OSCILLATOR		
X101	SVFCSB525P	525 kHz
SWITCHE		
S1	⚠ SFDSC02N02	Power
S301~306	EVQQS405K	Operation
S307	SFDSC02N01	Record Detector
S601	SFDSC02N03	Rest
PHOTO INTERRUPTER		
PC501	0N1186	Offset Angle Detecting
HALL ELEMENT		
H101, 102	0H-002	Turntable Position Detector
VARIABLE RESISTOR		
VR301	EVN61AA00B54	Clock Frequency Adjustment, 50 kΩ (B)
VR501	EVNK0AA00B53	Servo Gain Adjustment, 5kΩ (B)
RELAY		
RL701	SFDYQ11N02	Muting
POWER TRANSFORMER		
T1 [M]	⚠ SLT48DTL3A	Power Source
T1 [MC]	⚠ SLT48DT11C	Power Source
FUSE		
F1 [MC] only	⚠ XBA2F08NU100	250V, 800mA

Ref. No.	Part. No.	Description	
CABINET AND CHASSIS PARTS			
1	SFADC11M01E	Dust Cover	(1)
1-1	SFGZJ02N01	Rubber Cushion	(2)
2	SFGZC02N01	Rubber Cushion	(2)
3	SFUMC02N14	Latch, Dust Cover	(2)
4	SFUMQ06N22	Latch, Dust Cover	(2)
5	SFACC11N01E	Cabinet	(1)
5-1	SFKBBD2N01	Badge	(1)
6	SFGCQ06N02	Rubber Cushion, Transformer	(2)
7	SFKKC11N01	Ornament Plate	(1)
8	SRKTC11N02	Knob, Power	(1)
9	SFKTC11N01	Knob, Operation	(1)
10	SFUPC13N01	Guide, Knob	(1)
11	SFUMC13N01	Holder	(2)
12	SFDJC11N02E	Connector Ass'y (5P)	(1)
13	SFDJC02N05E	Connector Ass'y (7P)	(1)
14	SFQCC05N01	Spring	(4)
15	SFGAJ02N01	Insulator	(4)
16	SFAUC13N01	Bottom Cover	(1)
17	SFGBC10-01	Belt, Tonearm Drive	(1)
18	SFUMQ06N06A	Worm Ass'y	(1)
19	SFMHC02N02R	Motor	(1)
20	SFUMC02N05	Lever, Rest Switch	(1)
21	SFUMC02N13	Holder, Rest Switch	(1)
22	SFUZC05N02E	Rope Ass'y	(1)
23	SFUMQ06N07	Clamper	(1)
24	SFXJC02N03	Guide Rail	(1)
25	SFUMC05N22	Pulley	(1)
26	SFGCC05N05	Rubber Cushion	(2)
27	SFQHQ34N22	Spring	(1)
28	SFUZC02N01	Rod, Rest Switch	(1)
29	SFUMC02N06	Base, Rest Switch	(1)
30	SFUMC02N07	Motor Cover	(1)
31	SFUMUL11R03	Wheel, Tonearm Drive	(1)
32	SFUPBL3N11E	Base Motor	(1)
33	SFUMC02N10	Holder, Lead Wire	(1)
34	SFUMC02N12	Holder, Lead Wire	(1)
35	SFUMV05N23	Cap, Pulley	(1)
36	SFUPC02N03	Guide	(1)
37	SFATQ06N01E	Hinge	(2)
38	SFUKC13N01E	Base, Tonearm	(1)
39	SFDJJ02N04E	Jack, Phono Output	(1)
40	SFACC13N012	Cover	(1)
41	⚠ SFDJHSC0491	AC Socket	(1)
42 [M]	SFNNC11M01	Name Plate	(1)
42 [MC]	SFNNC11C01	Name Plate	(1)
43	SFACC11N011	Cover	(1)
46	SFUMC02N33	Lever, Record Detector	(1)
47	SFGCC02N03	Rubber Cushion	(1)
48	SFUMC02N35	Holder, Switch	(1)
49	SFWEC06N01	45 rpm Adaptor	(1)
50	SFQAC06N01	Spring, 45 rpm Adaptor	(1)
51	SFTGBL3N01	Turntable Mat	(1)
52	SFTEQ05N01	Turntable Platter	(1)
53	SFUMC05N11A	Record Detector Ass'y	(1)
54	SFTMC07-01E	Rotary Magnet Ass'y	(1)
55	SFMGQ34N01	Cover, Stator Coil	(1)
56	SFMZJ02M01R	Stator Frame Ass'y	(1)
57	SFGCQ06N03	Rubber Cushion, Dust Cover	(2)
58	SFQA913-01	Spring	(1)

Ref. No.	Part. No.	Description	
TONEARM PARTS			
61	SFPAM0L101A	Tonearm Ass'y	(1)
62	SFPKD00301R	Tonearm Base Ass'y	(1)
63	SFPGML1101	Rubber, Tonearm Guide	(2)
64	SFPGM00301	Rubber Cap	(1)
65	SFPSP00302	Spring	(2)
66	SFPSP00504	Spring, Arm Lift	(1)
67	SFDZC05N01E	Cueing Solenoid Ass'y	(1)
68	SFPCS0V501	Indicator Cover	(1)
69	SFPAK0Q601	Indicator Plate	(1)
70	SFPGM0Q601	Rubber, LED	(1)
71	SFPCSJ0201	Holder, LED	(1)
SCREWS, WASHERS AND NUTS			
N1	Ⓢ XTV3+10BFN	Screw, ⊕3×10	(6)
N2	XTW3+14QFYR	Screw, ⊕3×14	(6)
N3	Ⓢ XTV3+6BFN	Screw, ⊕3×6	(4)
N4	SFXWC06N02	Washer	(1)
N5	XSN3+5S	Screw, ⊕3×5	(3)
N6	SFXGQ06N01	Screw	(2)
N7	XTW3+14TFZ	Screw, ⊕3×14	(2)
N8	XTV3+6BFZ	Screw, ⊕3×6	(1)
N9	Ⓢ XTV3+6JFZ	Screw, ⊕3×6	(13)
N10	CSTW3	Washer	(2)
N11	Ⓢ XWE3A8BW	Washer, ϕ3	(2)
N12	XWE3D10	Washer	(1)
N13	XNC3HS	Nut	(1)
N14	XSN3+30S	Screw, ⊕3×30	(1)
N15	Ⓢ XTV3+8BFN	Screw, ⊕3×8	(1)
N16	XTN16+10G	Screw, ⊕1.6×10	(1)
N17	SFPEV0Q601	Screw, Cartridge	(1)
N18	XYN2+C4FZ	Screw, ⊕2×4	(1)
N19	SFXN623-1	Nut	(1)
N20	SFPTN00301	Screw	(1)
N21	Ⓢ XSN3+12S	Screw, ⊕3×12	(1)
N22	Ⓢ XWA3B	Washer, ϕ3	(1)
N23	XTN23+6JFZ	Screw, ⊕2.3×6	(1)
N24	XTV3+6JFZ	Screw, ⊕3×6	(1)
N25	XTV3+8BFZ	Screw, ⊕3×8	(1)
ACCESSORIES			
A1 [M]	SFNUC11M01	Instruction Book	
A1 [MC]	SFNUC11C01	Instruction Book	(1)
A2	SFDHBD2N01	Output Cord	(1)
A3	SFDLJ02N11E	Ground Wire	(1)
A4 [M]	⚠ SFDAC05M02	AC Cord	(1)
A4 [MC]	⚠ SRDA010C01	AC Cord	(1)
PACKING			
P1 [M]	SFHPC11M01	Carton Box	(1)
P1 [MC]	SFHPC11C01	Carton Box	(1)
P2	SFHHC13N01	Pad, Front	(1)
P3	SFHHC13N02	Pad, Rear	(1)
P4	SFHKC05N01	Clamper, Turntable Platter	(2)
P5	SFHKQ06N01	Spacer, Tonearm	(1)
P6	SFHSC13N01	Spacer, Dust Cover	(1)
P7	SFYH60X60	Polyethylene Bag	(1)
P8	SFYH17X16	Polyethylene Bag, Cord	(1)
P9	SFYF33B35	Polyethylene Bag, Turntable Mat	(1)
P10	SFHDD05N01	Pad, Turntable Mat	(1)
P11	SFYP43A41	Sheet	(1)

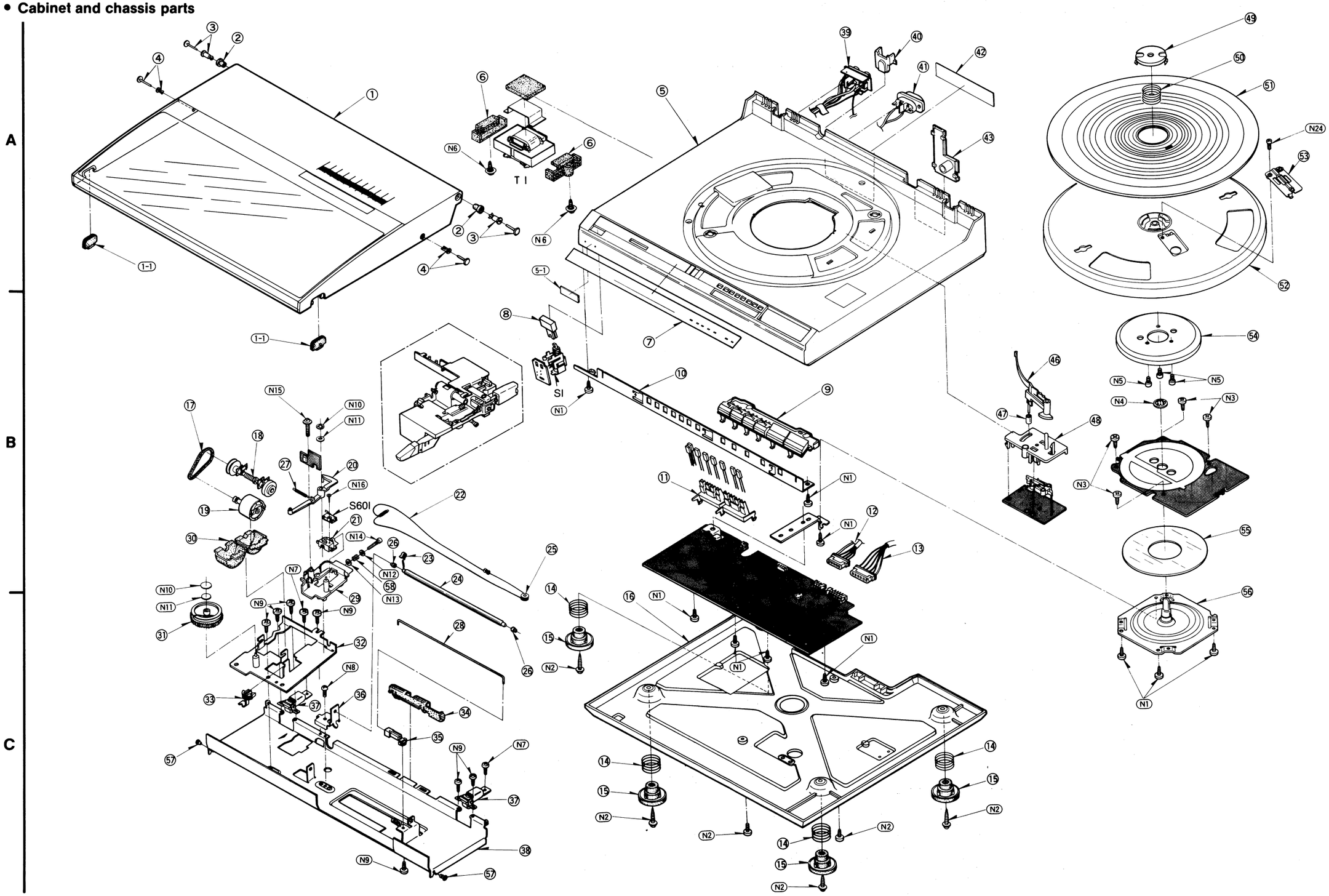
■ EXPLODED VIEW

• Tonearm parts



A			68			69								
B	70				67	65								
C			64				63		62	66	71	63		61

• Cabinet and chassis parts



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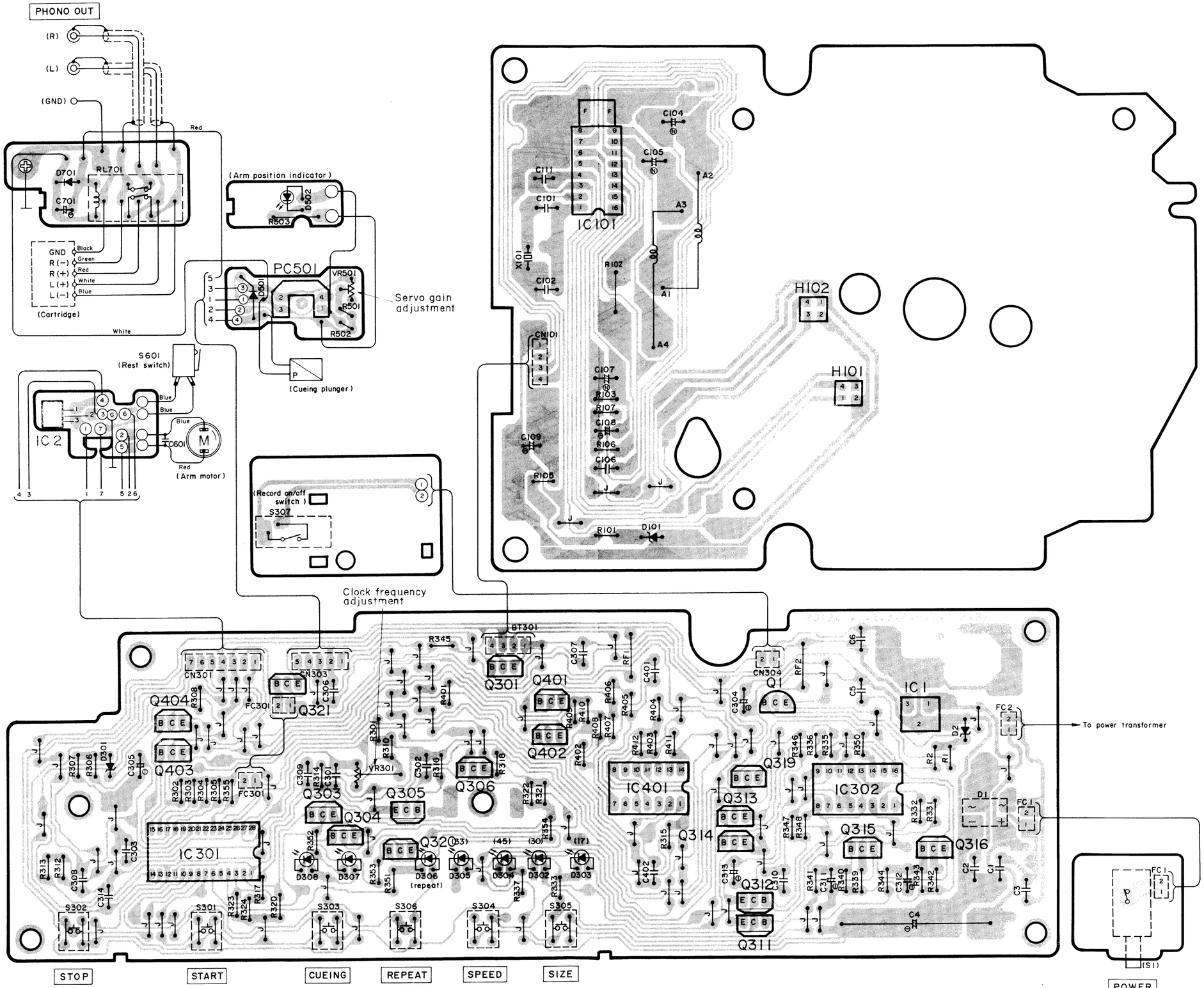
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

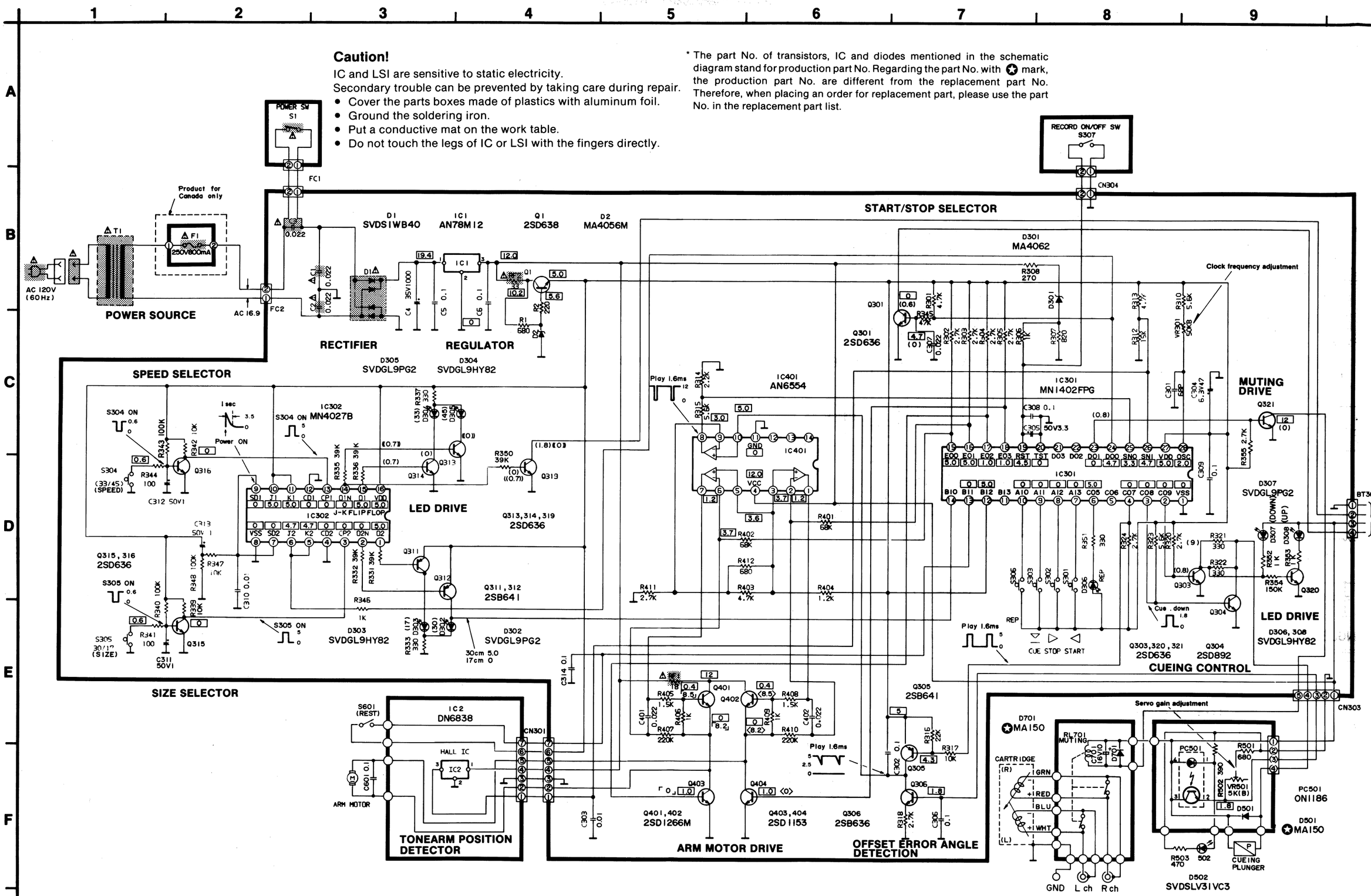


Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement part list.



4 5 6 7 8 9 10 11 12 13 14

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■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

1. S1 : Power switch in "on" position.
2. S301 : Start switch.
3. S302 : Stop switch.
4. S303 : Cueing control switch
5. S304 : Speed select switch.
6. S305 : Record size select switch
7. S306 : Repeat switch.
8. S307 : Record detector switch.
9. S601 : Rest swtich. (Tonearm is off the rest position.)
10. The voltage value and waveform are the standard values of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Therefore, the voltage value and waveform may include some error due to the internal impedance of the tester or the measuring unit.
    - * ▭ is the voltage when turntable is stop.
    - * ( ) is the voltage when turntable is in rotation.
    - * ⌐ ⌙ is the voltage when tonearm is in lead-in mode.
    - * < > is the voltage when tonearm is in return mode.
    - * (( )) is the voltage at 45 rpm.
11. —— Positive voltage lines.
12. Important safety notice:
    Components identified by ⚠ mark have special character-istics important for safety. When replacing any of these components, use only manufacture's specified parts.

IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

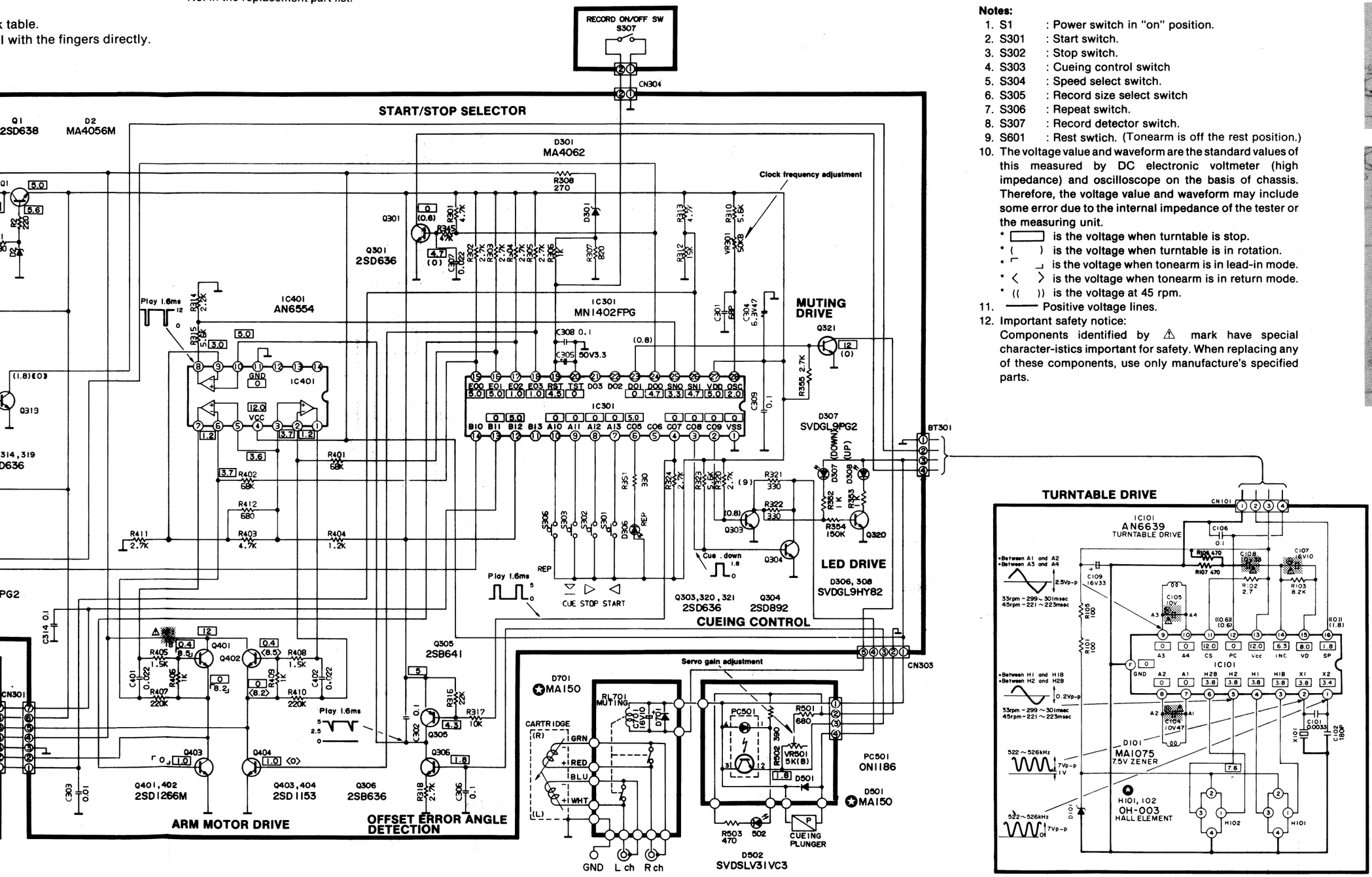
● Product for MC only

FUSE REPLACEMENT

Symbol located near the fuse indicates fast operating type. For continued protection against fire hazard, replace with same type fuse. Refer to the symbol for fuse rating.

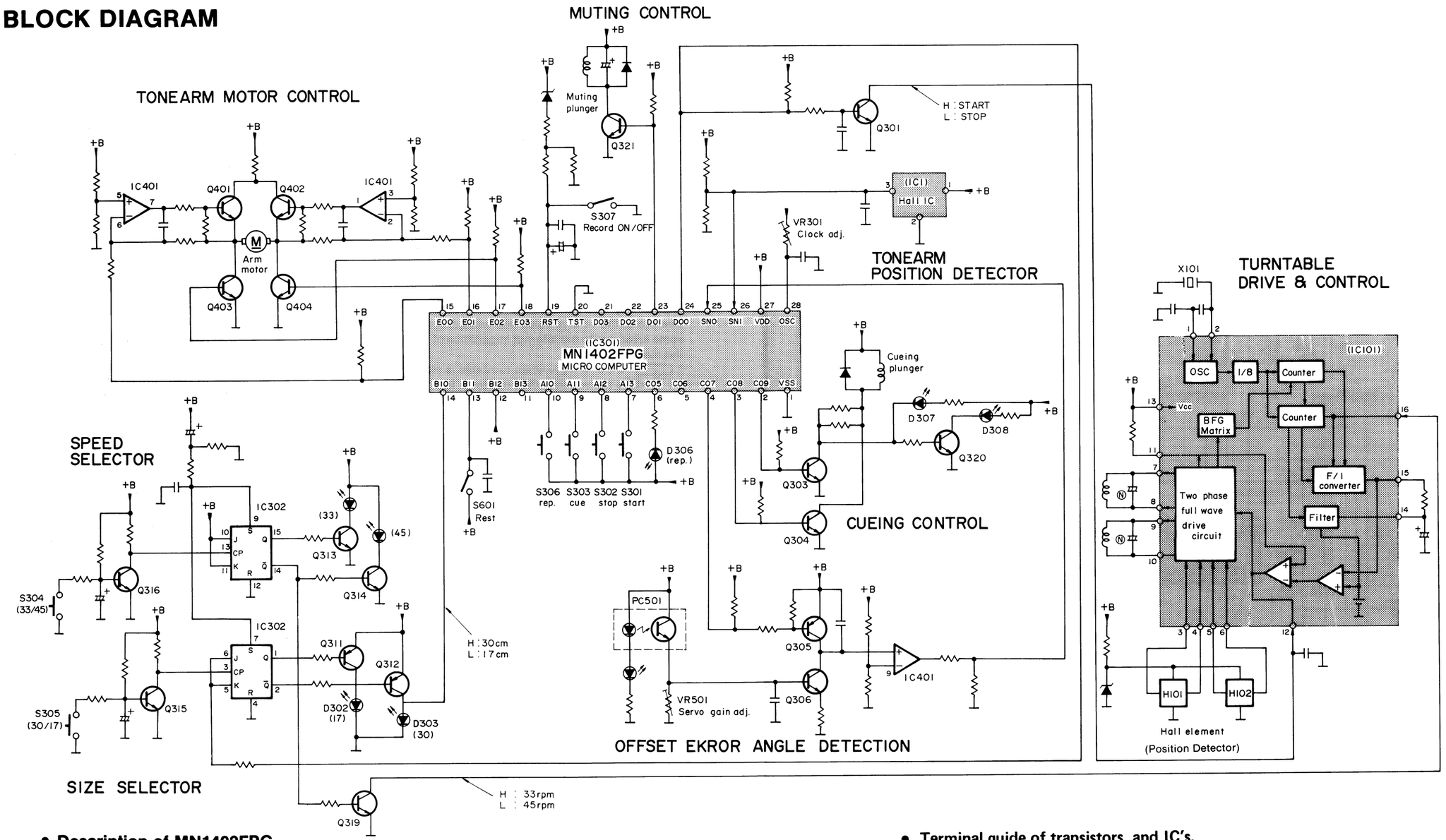
FUSIBLE REMPLACEMENT

Le symbole qui se trouve près du fusible singifie un fusible à action rapide. Pour une protection contiue contre les risques d'incendie, n'utiliser que des fusibles du même type. Se rapporter au symbole pour la valeur des fusibles.



SL-L1

■ BLOCK DIAGRAM



• Description of MN1402FPG

No.	Mark	Description
1	Ves	Ground terminal
2	C09	Cueing control terminal ("H" only during cueing and cueing down)
3	C08	Cueing control terminal ("H" during cueing down —about 1.1 sec)
4	C07	Key scan output terminal
5	C06	Not used in this unit
6	C05	Repeat indicator drive terminal
7	AI3	Start key input terminal
8	AI2	Stop key input terminal
9	AI1	Cueing key input terminal
10	AI0	Repeat key input terminal
11	BI3	Not used in this unit
12	BI2	Cabinet open/close detecting terminal (unused and connected to +5V power supply)
13	BI1	Rest position detecting terminal ("H" when tonearm is at rest position)
14	BI0	Disc size detecting terminal ("H" when 30 cm disc is present)
15	E00	Tonearm drive motor control terminal (Arm servo)
16	E01	
17	E02	
18	E03	
19	RST	Reset terminal (micom is reset at "L")
20	TST	Test terminal (connected to ground)
21	D03	Not used in this unit
22	D02	
23	D01	Muting control
24	D00	Turntable start/stop select terminal ("H" at stop; "L" at start)
25	SNS0	Offset angle detection input terminal
26	SNS1	Arm position detecting input terminal
27	VDD	Power supply (+5V)
28	OSC	Oscillator (adjust clock frequency to 30μs±1μs)

• Terminal guide of transistors, and IC's.